American Gas Association MONTHLY

Stage Set for Gas Convention

•

Builders' Competition Closes

•

Altitude Tests of Appliances

•

Unique Gas Heating Campaign

•

Why Not a Gas Appliance Week

October 1939

VOLUME XXI NUMBER 9

A. G. A.

RATE SERVICE

Published in loose-leaf form, this Service contains over 500 pages (8½" x 11") of complete and accurate information relative to gas rate schedules throughout the country. The volume is kept up-to-date by supplementary sheets issued monthly, incorporating changes in gas rates as they occur.

The A. G. A. Rate Service Contains

Complete gas rate schedules in effect for practically every community in the United States and Its Possessions, also Canada and Newfoundland, together with information on heating value and type of gas supplied.

Complete list of gas companies and communities supplied by each company.

Lists of gas companies having special rates for water heating, house heating, refrigeration and air-conditioning.

List of companies and communities where thermal rates are in effect.

PRICE TO MEMBERS
Initial Subscription—$10.00 per year; Renewals $8.00 per year

PRICE TO NON-MEMBERS
Initial Subscription—$15.00 per year; Renewals $10.00 per year

AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE,
NEW YORK, N. Y.

American Gas Association MONTHLY

CONTENTS FOR OCTOBER 1939

It isn't too late, if you act promptly, to join the crowd now converging on New York City eager to take part in the gas industry's annual stock-taking and, incidentally, to view that great international exposition, Mr. Whalen's super-show. A few more reasons why are presented in this issue and, believe me, your attendance is a "must" if you want to keep abreast of the times. . . . Just how much the gas industry has contributed to the American home is realized more poignantly than ever by thousands of architects and builders who competed in the Association's three-part all-gas home program. Results of the builders' contest, the final phase, are presented herein. . . . Did you know that altitude effects gas appliance performance? It does, and the Laboratories' investigation reveals how. . . . Gas heating campaigns in mild climates have special problems and not a few obstacles. Mr. Phelps tells how one company met these obstacles and came through with flying colors. He confidently expects that gas will now dominate the market. . . . When Harry Swenson starts talking about displays and kindred subjects, it's time to drop everything and listen. He's one of the most articulate and able of experts on such things.

PAGE

331 On with the Show
333 War-Time Emergency Affects British Gas Industry
334 A. G. A. Builders' Competition Ends
337 Effect of Altitude on Performance of Major Gas Appliances.....F. O. SUFFRON and O. N. SIMMONS
340 Selling Gas Heat—A Campaign That Hit the Bull's-Eye.....AUSTIN H. PHELPS
344 Dedicate New Home for Gas Laboratories
345 Solving a Service Problem.....C. T. HENDERSON
347 Stage a Gas Show and Make It the Sales Event of the Year.....HARRY SWENSON
350 "Join the Swing"—A Slogan That Popularizes Gas Heating.....H. P. MOREHOUSE
351 Letter from a Self-Made Plant Superintendent to His Son
353 Personal and Otherwise
355 Affiliated Association Activities
357 Proof of Service Billing by Tally Method and Bill Analysis.....GEORGE W. FUCHS
360 Home Service Conference and Training Course Attracts Delegates from 18 States .....JESSIE McQUEEN
361 Commercial Section Closes Year of Numerous Sales Activities.....F. X. METTENET
363 Selling Industrial Gas—and at a Profit.....I. LUNDGAARD
365 Industrial Gas Exhibit Planned for National Metal Show
365 Going Ahead with Industrial Gas
366 Water Gas Cycles.....R. VAN VLIET
368 Personnel Service

SUBSCRIPTION · $3.00 A YEAR

Published eleven times a year by the American Gas Association, Inc. Publication Office, American Building, Brattleboro, Vt. Publication is monthly except July and August which will be a bi-monthly issue. Editorial Offices, 420 Lexington Avenue, New York, N. Y. Address all communications to American Building, Brattleboro, Vermont, or to 420 Lexington Ave., New York, N. Y. All manuscript copy for publication should be sent to the editorial offices in New York. The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein. Entered as Second Class Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

Cable Addresses: American Gas Association
AMERIGAS, NEW YORK
American Gas Association Testing Laboratories
AMERGASLAB, CLEVELAND

Samuel Leggett, first president of the New York Gas Light Company, again illuminates his Cherry Street home with gas during the first public utility television program in history which was broadcast during Consolidated Edison Day ceremonies at the New York World's Fair. *(Story on page 343)*

American Gas Association MONTHLY

JAMES M. BEALL, *Editor*

ON WITH THE SHOW
. . . Stage Is Set for Gas Convention

THE stage is set, the actors are ready, soon the audience will be there and the curtain will rise on the premier event of the gas man's year—the annual convention of the American Gas Association which takes place October 9-12 at the Hotel Pennsylvania in New York City. Behind the scenes are scores of committees and many individuals who have given their best to perfect the show.

But it's different from the ordinary drama; it's not for entertainment or enjoyment but is the real-life drama of a great industry—one that is indispensable to the country's economic and home life; one that gives carefree, dependable service to millions.

It's different, too, because it has a supporting cast of thousands. Every one of the delegates who attends, as well as the headliners on the program, are members of the cast. They take part in the convention as much, sometimes more, than the men who are on the platform. In informal discussions from the floor, in man-to-man talks on mutual problems, in a hundred ways, each participates and contributes to the show's success. Each gives and takes, some more than others, but all to a degree that makes them part of the gas industry's premier event.

•

Again, it's different because the lines are not set, the action is not limited to a written script. To be sure, there is a formal program, carefully thought out and painstakingly prepared; one which covers the dominant issues of the day. But, as often happens in meetings of this kind, the most important actions are not the scheduled, planned events, but the spontaneous feeling of the delegates on unexpected issues—feelings which develop an avalanche of opinion demanding the immediate attention of the industry.

Often that avalanche is started by a mere snowball—an opinion incidentally voiced by a convention speaker, or by a debate in a hotel room the preceding night, or by a plan long cherished by some individual member which comes to general attention for the first time at the convention. Such an event at the 1935 convention in Chicago resulted in our highly successful national advertising campaign. An unscheduled speech by James F. Pollard, of Seattle, was the snowball that started the avalanche that made national advertising a reality. This time Mr. Pollard is on the formal program, but others may steal the show as he did in 1935.

Thus, the convention program, however complete, should be considered as a skeleton on which the real sentiment of the industry drapes itself as the convention progresses. Only those who attend can hope to get the utmost benefit or the true perspective of the industry's thinking. With this in mind, let's look at the new features which have been announced since our September issue went to press.

•

First of all, there's Gas Industry Day at the New York World's Fair. Of course, everyone attending the convention expects to see something of the Fair and its many gas applications. The special Gas Industry Day program arranged for Monday afternoon and evening affords a real opportunity to see it under favorable circumstances.

Starting at 4:30 P.M. at the Pennsylvania Station, personally conducted tours have been arranged to some of the outstanding exhibits at the Fair of special interest to gas men. One stop will be at the Glass Center, one of the most popular and spectacular exhibits, where gas is used exclusively for melting, reheating, working and cutting hand-blown glass.

Another will be at The Town of Tomorrow, where model homes reflect the latest developments in architectural and building science. These include three that are all-gas equipped and others that utilize gas for one or more services. A visit to the U. S. Potters Association exhibit is also included. Here gas kilns fire bisque, glost and decoration in the display manufacture of fascinating ceramic objects, including the stunning Fiesta dinnerware.

Following these tours, the delegates will assemble for a one-hour program at the Gas Industries Building. After

T. N. McCarter

Clifford E. Paige

W. G. Vincent

C. E. Bennett

E. R. Guyer

Frank C. Smith

More headliners who will take a major part in the general sessions program at the annual convention

introductory remarks by President Conrad N. Lauer, the feature address will be delivered by Clifford E. Paige, president of The Brooklyn Union Gas Company and former president of the Association.

Gas Spectacle on View

Dinner at the French or Belgian Pavilion for those who have made reservations, or in the Court of Flame Restaurant in the Gas Industries Building, will conclude the program. All of the delegates will be able to see the Lagoon of Nations Display—the Fair's feature extravaganza in which huge gas flares battle giant fountains in a breathtaking spectacle. They will also have time to see the fireworks display at Fountain Lake in the Amusement Area, as well as other attractions.

While detailed programs of the sectional meetings and general sessions have been mailed to all members of the Association, important new speakers have been added since that time, particularly in the general sessions. Six nationally known men have accepted prominent places on the general sessions' program since publication of our last issue.

Under the title, "Four Years of Progress," E. R. Guyer, president of the Association of Gas Appliance and Equipment Manufacturers, will review the relations of the gas appliance manufacturers and the gas companies. In view of the major progress of gas appliances in the last few years, and such momentous undertakings as the Certified Performance gas range program, as well as other far-reaching changes in the appliance industry, Mr. Guyer's remarks have special significance.

Report on Research

A recent development of major importance to the entire gas industry was the organization and appointment of a special Committee on Fundamental Research under the chairmanship of Frank C. Smith, president of the Houston Natural Gas Company. Mr. Smith will report on the findings of that committee at the second general session, Wednesday morning.

This session will also be featured by the appearance of Thomas N. McCarter, chairman of the board of Public Service Electric & Gas Company, donor of the McCarter medals and certificates for outstanding acts of life saving. Mr. McCarter will present medals to the most recent winners. These medals have been a tremendous incentive to quick and decisive action in the handling of accidents throughout the gas industry.

C. E. Bennett, president of the Manufacturers Light and Heat Company, Pittsburgh, and a foremost natural gas company executive, will discuss the aggressive promotion of industrial and commercial uses of gas. As the head of a company located in an industrial area which has done an outstanding job in this field, Mr. Bennett's address will be authoritative and constructive.

New developments in the natural gas industry, with particular reference to California, will be outlined by W. G. Vincent, vice-president and executive engineer of the Pacific Gas and Electric Company. A background of 27 years with this company, including many special studies and investigations, gives Mr. Vincent a valuable perspective.

Mr. Vincent has been vice-president and executive engineer of the Pacific Coast company since 1922, having joined the company in 1912. He has charge of purchasing all natural gas for the company and his activities include statistical, valuation and rate work. He is a member of the President's Advisory Committee, Gas Engineering Committee, chairman of the Appropriation Committee and of the Research Committee. He is a past president of the Engineers' Club of San Francisco.

Marketing Expert To Speak

A highlight of the convention is expected to be the address of Dr. Kenneth Dameron, professor of marketing, Ohio State University, Columbus, and a noted authority in the merchandising field. Speaking on "Your Market," Dr. Dameron will present a most versatile and experienced viewpoint to the gas industry. He is a director of the Advertising Federation of America, member of the advisory staff of the Institute of Public Relations, and a merchandising consultant. At present, he is engaged in a research project for the Consumer Relations Committee of the American Association of Advertising Agencies.

Dr. Dameron has addressed many national conventions and been a prolific contributor to business, merchandising and advertising publications, as well as being author of a number of

marketing, merchandising and advertising books. During N.R.A., he was deputy administrator in charge of distribution and subsequently appointed to the National Retail Trade Economics Board. He has been distribution editor of the *Dry Goods Economist* and contributing editor of the *Retail Ledger*.

Other speakers on the general sessions program who were discussed in the last issue of the MONTHLY include: Conrad N. Lauer, president, American Gas Association; Thomas Henry Sanders, Professor of Accounting, Graduate School of Business Administration, Harvard University; James F. Pollard, president, Seattle Gas Company; A. F. Rice, manager of market development, Southern California Gas Company, and Herman Russell, president, Rochester Gas & Electric Corporation, and past president, American Gas Association.

A feature of the final general session will be the presentation of Association awards in recognition of exceptional achievement in the gas industry. These include the Charles A. Munroe Award for the outstanding contribution of general interest to the gas industry, the Beal Medal for the best technical paper, and the American Gas Association Meritorious Service Medal, for the performance of the most meritorious act during the year.

Local Utility Tours

Of particular interest to delegates from outside the metropolitan New York area will be the opportunities afforded to observe at firsthand the operations of the great public utilities in this section. Arrangements have been made for specially conducted tours both to offices and plants of these companies so that their operations may be fully understood. Tours to offices and plants will be made on separate days. In view of the operating and service conditions peculiar to this densely populated, industrial area, these visits should prove stimulating and valuable.

In addition to the three general sessions, Tuesday, Wednesday and Thursday mornings, the following sectional meetings will be held, all in the Hotel Pennsylvania: Natural Gas Section, Monday morning; Accounting Section, Tuesday afternoon, and luncheon conferences, Thursday; Commercial Section, Tuesday and Wednesday afternoons, and Technical Section, Tuesday and Wednesday afternoons. The Home Service Breakfast will be held Wednesday morning and the luncheon sponsored by the Committee on Personnel Practices will take place on Thursday. Full details of these meetings have been distributed to members of the Association.

Many of the sessions have been shortened to allow ample time for visitors to see the New York World's Fair with its many unique applications of gas fuel. Registered delegates may use their convention badges to gain admittance to the Court of Flame Club, the exclusive gas industry club in the Gas Industries Building at the Fair.

All delegates are urged to register early so that they may attend all meetings and participate in the Gas Industry Day program on Monday.

War-Time Emergency Affects British Gas Industry

THE newest among the European trade papers devoted to the gas industry, *The Gas Times* of London, is the first to reflect pressure of the European emergency. Its September 9 issue consisting of but 16 pages (normal is about 36 to 44 pages) and on its front cover bears the legend that although reserved for a regular advertiser, "owing to emergency circumstances beyond their or our control, their pictorial publicity became unavailable." In its place was substituted a formal photograph of King George and Queen Elizabeth.

The inside front cover is devoted to the "requisites for gas lighting" according to the A.R.P. (Air Raid Precautions) requirements and shows a metal dimmer with perforated base plate and a metal slotted canopy for adequate shielding for windows, skylights, etc., to be attached to all existing standard maintenance type incandescent mantle burners.

On the editorial page is notice of temporary change of address from London to Leighton Buzzard, Bedfordshire, and the hope that conditions will permit an early return.

A glance at the principle articles is descriptive and illuminating, the first being an emergency method of flooding holder mains for the isolation of a holder damaged during an air raid. Next is an illustrated article as to how air raid wardens control a blackout in the city of Watford. Immediately on the declaration of an emergency, a representative of the gas company visits each lighting column and makes suitable adjustments, leaving the lamp ready for immediate extinction by the warden in the event of an air raid.

The Tottenham and District Gas Company has carried out an ambitious scheme for the protection of personnel during air raids, constructing water-tight tubular shelters 8 feet long and 90 inches in diameter, as well as communal shelters capable of accommodating 60 persons each. Many are buried below ground and in some cases under coal and coke heaps. Wardens' observation posts have been stationed on the works at strategic points, consisting of 48-inch diameter tubes so that their occupants can observe the works with safety during an air raid.

The Leeds Gas Department has an air raid service which has an arrangement to isolate certain parts of the plant should they become damaged. A standby plant has been installed and additional gas pipes and main laying equipment have been accumulated together with reserve stores, all with a view to maintaining gas supply on the district.

Protection for employees has been arranged in the various stations including pill box shelters at the five holder stations for the attendants and their families, and special small shelters for key men. Full advantage has been taken of all suitable underground passages and additional construction undertaken to join up the various cellars by means of tunnels.

At the Leicester gas works, steel boilers which are not now in use are being converted into shelters for the plant personnel in the event of air raids.

The Midland Association of Gas Engineers at their May meeting put on a demonstration of apparatus and procedure for bagging off large gas mains. In view of the present emergency, *The Gas Times* reproduces a report of the salient features together with illustrations.

One English firm has built a special gas-heated boiler designed to conform with the requirements of the A.R.P. authorities for the safe and speedy decontamination of articles of clothing which have been subjected to war-time gases.

An interesting column is a notice of emergency address changes including those of some of our good manufacturer friends as well as that of the Society of British Gas Industries.

One page is devoted to illustrated descriptions of a concrete gas-proof shelter for air raids in which provision has been made for a constant supply of filtered fresh air maintained at a slightly higher level than that of the outside atmosphere, as well as a trailer pump for fire purposes which can be towed by a small private car. Its capacity is 80 to 140 gallons per minute.

A. G. A. Builders' Competition Ends

CULMINATING a three-part nation wide program to promote the sale of gas and gas appliances in new and modernized homes, sponsored by the Commercial Section of the American Gas Association in cooperation with The Architectural Forum Magazine, the all-gas builders' competition closed on July 31 and winners of the $10,000 in prizes were announced August 24. The first part of the program consisted of an architectural competition for the design of all-gas homes while the second part involved the demonstration of all-gas homes in various parts of the country under the sponsorship of local gas companies.

The builders' competition was open to builders and architects who had built or modernized homes using gas for the "four big jobs" of cooking, water heating, refrigeration and house heating during the period from July 31, 1937 to July 31, 1939. More than 2000 registrants, including many of the country's foremost architects and builders, took part in the competition.

An outstanding group of architects, builders and realtors gathered at the Hotel Ambassador in New York City, August 22 to 24, as a jury to award the fifteen prizes totaling $10,000. A list of the prize winners and those selected for honorable mention appears on a following page.

The program was officially concluded at a formal dinner in honor of the distinguished jury held at the Hotel Ambassador on the evening of August 24. Conrad N. Lauer, of Philadelphia, president of the American Gas Association, was the guest of honor and principal speaker. The dinner was attended by executives of the gas industry and the architectural and building professions.

Members of the jury were: Otto Teegen, director of the department of architecture, Beaux Arts Institute of Design and New York World's Fair

board of design; Hugh Russell, widely known West coast builder, Seattle, Wash.; George F. Nixon, builder and realtor, Chicago, Ill.; Bernard L. Johnson, editor, American Builder and Building Age, and Miles L. Colean, architectural supervisor and assistant administrator, Federal Housing Administration, Washington, D. C.

The prize-winning and other meritorious designs will be on display at the Gas Industries Building at the New York World's Fair. In addition, the October issue of *Architectural Forum* will carry complete details of these prize-winning and honorable mention homes and reprints will be available for distribution by the Association and its member companies.

A selection of fifteen or twenty of the entries will be carried in the *American Builder* for October, followed by a special section in December devoted to kitchens and basements of the prize-winning and other homes entered in the contest.

It is planned to hold in New York City a special luncheon inspection of the home designs entered in the contest for the editors of numerous consumer magazines. Much favorable and valuable publicity is expected to result from this contest in view of the fact that it represents all-gas homes actually constructed in various parts of the United States.

A number of gas companies have sponsored or are sponsoring replicas of the all-gas homes at the New York World's Fair for construction and demonstration in their communities.

On the opposite page and below the distinguished jury is shown making a careful study of the entries. In the picture below are, left to right: B. L. Johnson, Hugh Russell, Otto Teegen, F. W. Williams (on stairway), Miles Colean, George F. Nixon and Howard Myers. At right, Major Alexander Forward, A.G.A. managing director, addressing a luncheon meeting of the jurors. The bottom picture shows the speakers' table at the dinner at which the prize-winners were announced. In this picture are, left to right: John W. West, Jr., Major Forward, President Conrad N. Lauer, Howard Myers, Miles Colean, B. L. Johnson, George F. Nixon, Hugh Russell, and Otto Teegen

WINNERS IN A.G.A. ALL-GAS HOME BUILDERS' COMPETITION

$1,000 Prizes

Name of Competitor	*Address*
Bissner, Harold J.	595 East Green St., Pasadena, California
Murphy and Dean Co.	1301 Public Service Bldg., Portland, Ore.
De Bogdan, Oscar A.	1 Chase Road, Scarsdale, New York
Bramberg, R. W., Co.	6557 W. North Ave., Oak Park, Ill.
Hughes, J. H.	316 Citizens Nat'l Bank Bldg., Abilene, Tex.

$500.00 Prizes

Brown, Homer T.	1320 Beacon St., Brookline, Mass.
Long, George W.	4411 Culver Road, Rochester, N. Y.
Wells and Merrill	103 Park Avenue, New York, N. Y.
St. Clair, Aubrey	119 Coast Blvd., Laguna Beach, Calif.
Lippmann, Herbert	415 Lexington Avenue, New York, N. Y.
Breidenbach, William F.	2087 Iuka Avenue, Columbus, Ohio
Farmer and Duran	Philtower Bldg., Tulsa, Oklahoma.
Kirkpatrick, Frank	213 West State St., Milwaukee, Wisconsin
Stockdale, R.	3260 Hillock Drive, Los Angeles, Calif.
Owen, J. Wayland	Route 5—Canyon Road, Portland, Oregon

Honorable Mention

A. E. Doyle & Associates, 1040 Pacific Building, Portland, Oregon
Philip B. Maher, 157 East Erie Street, Chicago, Illinois
Raphael S. Soriano, 1207 Miramar Street, Los Angeles, California
Thomas B. Winship, 2115 N. E. 48th Avenue, Portland, Oregon
Benson Eschenbach, Harwood Building, Scarsdale, New York
John E. Dinwiddie, 30 Pine Street, San Francisco, California
Y. H. Larsen, 1240 Whitney Avenue, Hamden, Connecticut
G. A. Biederdorf, 1730 W. Third Street, Stillwater, Okla.
W. Montgomery Anderson, 140 Peachtree Street, Atlanta, Ga.
J. Earl Trudeau, 816 W. Fifth Street, Los Angeles, California

The Commercial Section has published a special booklet on these homes.

Speaking at the dinner which formally closed the builders' competition, President Lauer reviewed the history of the program and expressed confidence in its far-reaching results. He said in part:

"For several years the subject of better and more modern housing has been highly publicized in the national press and in the various architectural and building magazines. Recognizing that a substantial boom in the building and construction field would result in increased markets for our services and equipment, the gas industry sponsored a long-range program, the purpose of which is to inform the architectural and building professions and the consuming public of the merits of gas and gas burning appliances and their application to homes.

"This program is known as the A.G.A. All-Gas Home Program, and its theme is "Use Gas For the Four Big Jobs." This theme ties in with the national advertising activities for which our industry spends a considerable sum of money annually.

"The first part of the program, the Architectural Competition, met with singular success with more than 5,000 architects from every part of the United States and Canada officially entered. Hundreds of plans for all-gas homes including separate plans for kitchens, basements and utility rooms were received and highly publicized. Of great importance to our industry is the fact that each competitor was supplied with complete information and specifications on gas and gas appliances and their application to homes. With this material available in their files, we are confident that gas will be specified in their future planning and designing activities.

"The Demonstration Home program, consisting of homes sponsored in a cooperative effort by local utility companies and reputable builders, continues apace with homes built already in over forty cities in the United States. These homes have been viewed by hundreds of thousands of persons who have seen the service and appliances available through the local utility company amidst a new home setting. In addition, a tremendous amount of gas publicity has appeared in the architectural and building magazines and the national press.

"It was my privilege at the Natural Gas Convention recently held in Tulsa, Oklahoma, to visit a demonstration home sponsored by the gas utility company, and I was greatly impressed with the manner in which the home had been carefully designed and built, and the attention and publicity that it received.

Home a Vital Factor

"The American home is a vital factor in the development of our living and social standards and the automatic and care-free services rendered by the nation's public utilities have contributed mightily to this end. The American gas industry, with its hundreds of utilities and gas appliance manufacturing companies has and continues to make available the service and equipment so necessary to the comfort, convenience and welfare of our people.

"Today, through the efforts of the various housing organizations, both private and governmental, the public is becoming more and more home conscious. It is the intention of the gas industry to work closely with these organizations in order that the home may be equipped with the finest of services and equipment that this modern age can produce.

"The use of gas has played a very important part in the progress and development of our living standards. The gas range, refrigerator, water heater and furnace, the space heater, the laundry stove, the gas-heated washer, the gas-heated dryer and the gas ironer and other gas appliances contribute a vital part to modern living. There is no other fuel that can be so accurately controlled and safely and conveniently used as gas. No other fuel has done more for the advancement of the general living standards of our people than gas.

"We firmly believe that the results of our program will have a definite bearing on housing for some time to come. Furthermore, we are proud of the fact that we are doing our full share in making today's home a better place in which to live."

Effect of Altitude . . . *on Performance of Major Gas Appliances*

By F. O. SUFFRON
and
O. N. SIMMONS
A. G. A. Testing Laboratories

THE effect of altitude on the performance of gas burning appliances has long been a problem confronting the gas industry. In the United States there are centers of population at altitudes ranging from sea level to five thousand feet above sea level or more. As a result, the barometric pressure under which gas is utilized will vary from approximately 30 to 24 inches of mercury. Several discussions and reports of test results dealing with this subject have appeared during the past several years, among them being Research Paper No. 553 of the National Bureau of Standards and a paper delivered before the Utilization Committee of the Pacific Coast Gas Association at its 1938 Convention by John C. Mueller and Louis C. Morris.

Bureau of Standards Work

The National Bureau of Standards investigation was conducted in a specially constructed altitude chamber in which any desired atmospheric pressure could be maintained. As a result of this work on contemporary appliances, the American Standards Association Sectional Committee, Project Z21, American Gas Association Approval Requirements Committee, decided that the input ratings of all approved appliances should be reduced at the rate of five per cent for each 1,000 feet above sea level.

While the studies made at the National Bureau of Standards have been accepted as accurate and authoritative, the American Gas Association Testing Laboratories were authorized to make a further study of this subject. It was decided to make comparative tests at or near sea level and at some high altitude location.

Lake Arrowhead, California, having an altitude of 5,130 feet above sea level, was selected as a suitable location for the work. Figure 1 shows a typical view of the surroundings. The Pacific Coast Branch of the A. G. A. Testing Laboratories, located at 250 feet elevation, or approximately sea level, was selected for basic comparative tests.

Figure 1. Typical view from location of high altitude tests

The fact that the two locations are only about 80 miles apart made the transportation of equipment comparatively simple. In addition, both localities were served with natural gas from the same general source, thereby eliminating any possibility of the results being influenced by significant variations in gas composition. The gas used at both elevations had a heating value of approximately 1,050 B.t.u. per cu.ft. at 60° F. and 30 in. mercury and a specific gravity of about 0.60.

Tests were first conducted at the Pacific Coast Branch to determine the maximum rate at which the appliances employed could be operated without producing in excess of the allowable carbon monoxide concentration at normal gas pressures. The appliances were then transported to Lake Arrowhead, without change, and similar tests conducted at the higher elevation. Heating values of the natural gas supplied at the higher altitude were determined from samples transported in rubber sample bags to the Los Angeles Laboratories, where B.t.u. determinations were made.

Equipment Tested

Tests were conducted on two gas ranges, two radiant heaters, two circulators, one vented, the other unvented, a floor furnace and a gravity-type basement furnace. It was felt that results obtained from testing the appliances selected with their diversified designs would be comparable to the results shown by any contemporary type of appliance on the market. All appliances employed had been tested and approved by the American Gas Association.

Combustion curves were constructed for all appliances, of which a typical example is shown in Figure 2. As the input in B.t.u. per hour was varied, the flue gases were analyzed for carbon monoxide and carbon dioxide, and percentages of carbon monoxide plotted against inputs. All carbon monoxide analyses were computed on an air-free basis, and the inputs corrected to standard conditions of temperature and pressure (60° F. and 30 inches Hg.), for comparison.

The following procedure was adhered to when combustion samples were taken. The appliances were rated

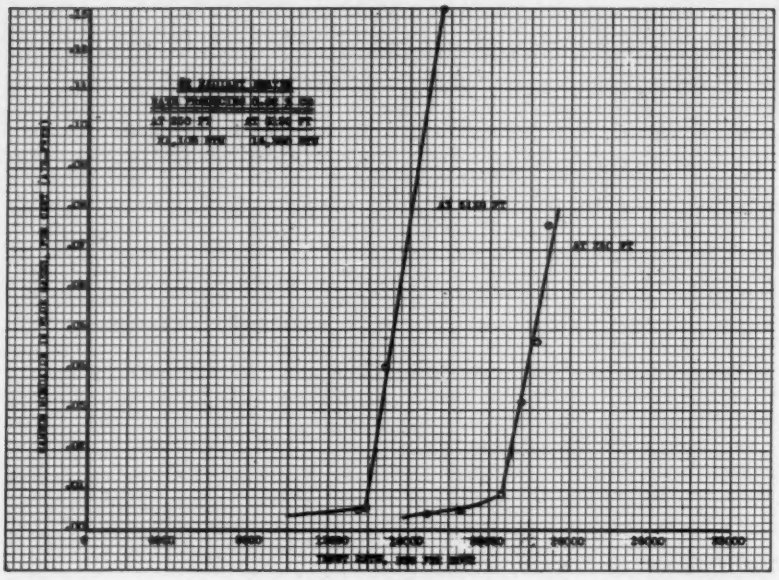


Figure 2. Relationship between input rate and combustion at sea level and at 5,000 ft. elevation

adjustment conditions. If it is assumed, therefore, that the factor of safety indicated by the difference between the manufacturer's rating and the maximum safe rate obtained at sea level is necessary to insure satisfactory performance, then the same factor of safety should be applied to the rating obtained at Lake Arrowhead in order to secure the same degree of flexibility.

This becomes particularly important in view of the fact that on some appliances the nominal input at sea level closely approaches the maximum safe rate. Moreover, it is not known in the majority of cases whether the normal rate is close to the maximum safe rate or whether there is a wide margin between them. The per cent decrease in rating per 1,000 feet elevation appearing in column E of Table I, which represents the difference in maximum allowable ratings, should therefore be applied to the manufacturer's rating in column B.

Considering appliances individually, the combusion-input rate curves (for example, see Figure 2) show that the amount of rate reduction necessary for safe operation in the higher altitudes will vary, and will depend on the flexibility of each individual appliance. Appliances with sea level input ratings approaching their maximum allowable and adjusted to give good flame characteristics while hot. Thus, any heating-up variations of an individual burner were eliminated. All tests were conducted with a gas pressure equivalent to 7 inches of water, except in the case of appliances with regulators where a manifold pressure equivalent to 4 inches of water was maintained.

The term "maximum allowable gas rate" was employed for the purpose of indicating that amount of gas in B.t.u. per hour which would produce the maximum percentage of carbon monoxide permitted by the American Standards Approval Requirements. This rate at both 250 and 5,130 feet elevation was found from the combustion curves as illustrated in Figure 2. The method of determining the maximum allowable gas rate by means of curves was deemed to be the most satisfactory method since it will be seen on studying Figure 2 that it would be impractical to adjust an appliance to obtain a gas rate that would produce the exact allowable limit of carbon monoxide, since the limit of safe operation generally occured rather abruptly.

CO Concentration

It will be noted from Figure 2 that as the input rate was increased the concentration of carbon monoxide did not increase gradually, but increased from a trace to a large amount abruptly. As the critical input rate was approached, a small increase in gas input resulted in a large increase in carbon monoxide concentration. This performance was typical of all vented appliances studied.

In Table I are shown the maximum input rates obtained at sea level and at high altitude. It will be noted that with the exception of the two radiant heaters, an apparent allowable rating at high altitude was at least as great as the name plate rating. This condition may be attributed to several factors. The measure of maximum rating used in this study was the maximum allowable carbon monoxide concentration in the products of combustion.

In designing an appliance, a manufacturer does not always attempt to approach this limit too closely, particularly since he must also secure the

TABLE I

MAXIMUM RATINGS AT HIGH AND LOW ELEVATIONS

Appliance *A*	*Manufacturer's Rating B.t.u. Per Hour* *B*	*Maximum Rating Obtainable at Sea Level, B.t.u. Per Hour* *C*	*Maximum Rating Obtainable at 5,130 Feet Elevation, B.t.u. Per Hour* *D*	*Per Cent Reduction in Maximum Rating Per 1,000 Feet Elevation* *E*
1. Range No. 1 Oven	21,000	30,250	26,600	2.5
2. Range No. 2 Top Burners	36,000	44,000	37,200	3.2
Oven	22,000	33,200.	27,700	3.4
3. Unvented Circulator	15,000	29,000	20,400	6.1
4. Vented Circulator	20,000	36,200	28,500	4.4
5. Radiant Heater No. 1	14,000	17,200	13,700	4.2
6. Radiant Heater No. 2	20,000	21,100	14,300	6.6
7. Floor Furnace	25,000	32,000	26,200	3.7
8. Basement Gravity Furnace	90,000	111,000	90,000	3.9
			Average	4.2

same satisfactory combustion results on other types of test gases. A certain factor of safety and flexibility in performance is therefore generally built into the appliance, to permit it to accommodate variations in pressure and gas composition under typical field rate have comparatively small factors of safety. Therefore, the amount of rate reduction required for their safe operation in high altitudes is high as compared with those appliances with a greater difference between the manufacturer's rate and maximum allowable rate at sea level.

It will be noted from Table I that the average reduction in maximum input rates per 1,000 feet increase in altitude required to maintain safe performance was 4.2 per cent. The maximum decrease required was 6.6 per cent (radiant heater No. 2) and the minimum 2.5 per cent (range oven No. 1). Accordingly, the 5 per cent reduction in input rate per 1,000 foot increase of elevation which has been adopted for application to all appliances on the basis of the work conducted at the National Bureau of Standards appears to be satisfactory.

Results Agree with U. S. Bureau

The agreement between this investigation and that conducted at the National Bureau of Standards is illustrated by Figure 3, which shows the maximum safe gas rates at various altitudes expressed as a percentage of the maximum safe gas rate at sea level, for each of the appliances studied. In addition an average curve for all results of this investigation as well as the average curves for the results of the National Bureau of Standards' work is shown on Figure 3. The close agreement is apparent.

While data on other performance characteristics were obtained during the investigation they are not felt to be pertinent to the discussion, since it is desired only to emphasize the important limiting factor namely, freedom from carbon monoxide production. It may be noted, however, as a matter of interest, that thermal efficiency tests conducted on the two furnaces and the vented circulator at both altitudes at the respective maximum safe gas rates showed no significant difference in any case. It may be concluded, therefore, that changes in altitude have no effect on efficiencies assuming correct adjustment of the appliance at the prevailing altitude.

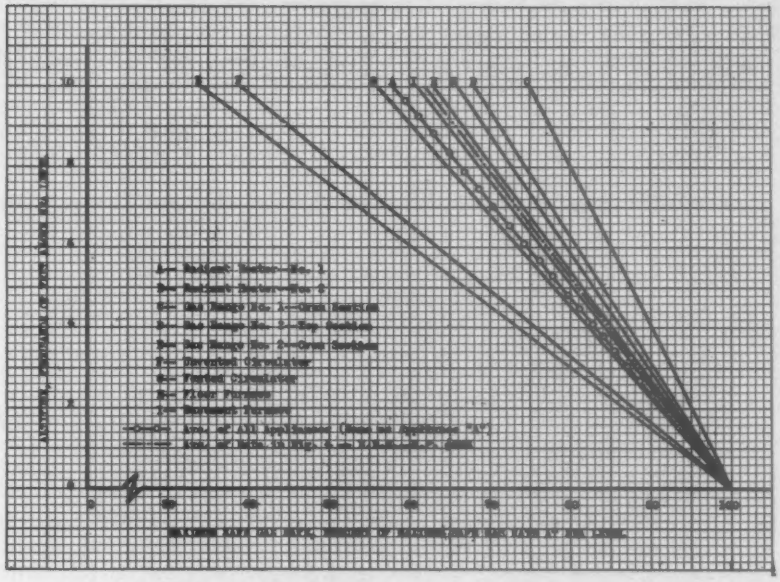


Figure 3. Effect of altitude on maximum safe gas rate

Gas Industry Progress Cited in Survey

WITH more customers than it has served at any time in its history and with greater sales and revenues than it enjoyed in 1929, the gas industry, the oldest utility in the United States, seems to have reason to face the future with confidence, according to a survey appearing in the current issue of *The Index* published by The New York Trust Company.

Serving a total of 17,135,000 customers, or about 60% of the nation's homes, the gas industry represents a total investment in plants and equipment of almost $5,000,000,000, *The Index* states. Total sales of the industry in 1938 are estimated at $786,576,000.

"In a difficult period the (gas) industry has succeeded in expanding its market both in domestic and in industrial uses," *The Index* points out. "Through improvement of appliances it has made its product more acceptable to consumers. Confronted with changing business conditions and habits of living, the industry has shown itself flexible enough to take advantage of these changes to improve its position in a highly competitive field.

"The growth of the gas industry and its record in adverse times, therefore, indicate that with any upturn in business generally it may be expected to achieve even greater advances than those already made in its century and a quarter of orderly progress.

"The progress achieved by the gas industry has been made against keen competition which has confronted it in practically all its fields of use. In most of the areas served by gas, the industry's advance has been accomplished despite the availability of coal, oil and electricity and of modern devices for their use. In brief, with the gas industry, as with other forms of private enterprise in the United States, competition has fostered progress."

Manufacturers Predict Sales Upswing

MANUFACTURERS of gas appliances anticipate accelerated Fall and Winter selling seasons based on the constantly rising sales figures for all gas appliance lines so far this year, it was reported by E. R. Guyer, president, Association of Gas Appliance and Equipment Manufacturers, following a meeting of the board of directors on Sept. 6.

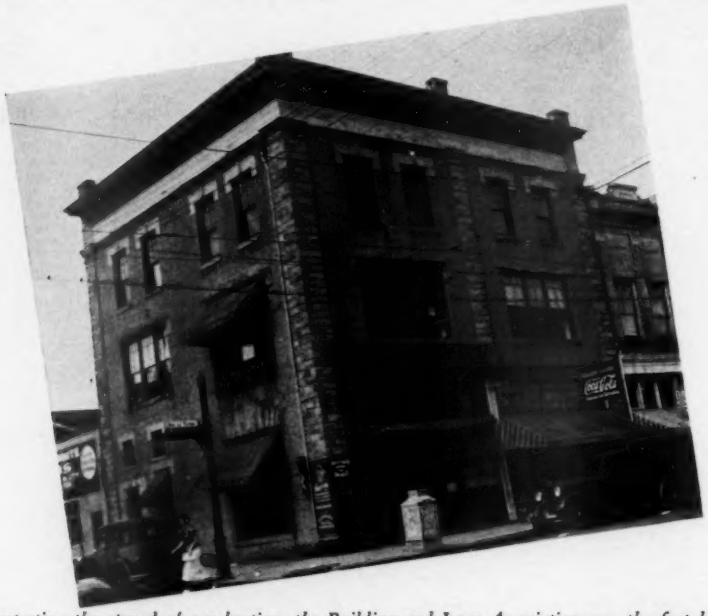
Mr. Guyer said that increasing sales indicate "greater buying power on the part of the consumer public throughout the country." He pointed out that at the rate sales have been rising, 1939 averages should exceed those of the past ten years.

A program for the Association's annual meeting to be held at the Roosevelt Hotel in New York on Monday, October 9, was approved by the board. The principal event at the meeting will be the election of officers and directors for the fiscal year 1939-40.

Selling Gas Heat . . . *A Campaign That Hit the Bull's-Eye*

By Austin H. Phelps

Tide Water Power Co., Wilmington, N. C.



Illustrating the spread of gas heating, the Building and Loan Association was the first heating job. Now every office upstairs, the restaurant next door, the shoe repair parlor beyond, the drug store directly across the street and another restaurant have provided automatic gas heat to provide almost a solid block heated by gas

Foreword

The area served by the Tide Water Power Co., gas division, consists of Wilmington, with approximately 4,000 meters; Fayetteville, 90 miles to the west with about 800 meters; Goldsboro, 80 miles east by north of Fayetteville with about 700 meters; Kinston, another 30 miles to the east of Goldsboro and 90 miles north of Wilmington with 800 meters; New Bern, another 30 odd miles to the east with approximately the same number and Washington, 40 miles north of New Bern and about 135 miles north of the general offices with around 600 meters. Manufactured gas having 540 B.t.u. per cu.ft. is served.

Because of the small size of the properties, meter reader-salesmen had to be used, and because of their almost equal 90 mile radius from the general office, contact was difficult. Very little industrial load was possible beyond process steam, metal melting for printing plants and tire vulcanizing. Our biggest opportunity for immediate volume seemed to be heating.

Wilmington is a curious combination of the old and new. It prides itself on its history from the time its residents refused to accept the Stamp Act before the Boston Tea Party. The last open port in the Confederacy, its shores are dotted with the wrecks of blockade runners bringing the necessities of life through the Federal Blockade, and the pumps of the Ethel Dow company processing sea water for its bromine have their inlets around some of these wrecks. Headquarters of the Atlantic Coast Line, the bulk of its income comes from tobacco, cotton, potato and truck farming.

THE heating engineer transferred to an area of low degree days is usually told immediately upon arrival to forget his degree day tables. "They can't be used here," and "all they need heat for is to take the chill off mornings and evenings."

Experience convinces me that this is about as dangerous advice as it is possible to give, and that the latter remark provides the bulk of the mental hazards to be overcome. To be sure, the degree days must be analyzed in the light of other meteorological information and intelligently applied. And the sale of inadequate devices to "take the chill off," with an offhand

Left—In this, their old building, Todd Furniture Company sold, among other things, oil burners. Moving directly across the street to their large, modern, two story building, it was entirely heated by GAS. *Right—The Mira-Mar, built right on the shores of the Atlantic. Everything in this building is gas including emergency gas lights. Even the counter appliances are gas*

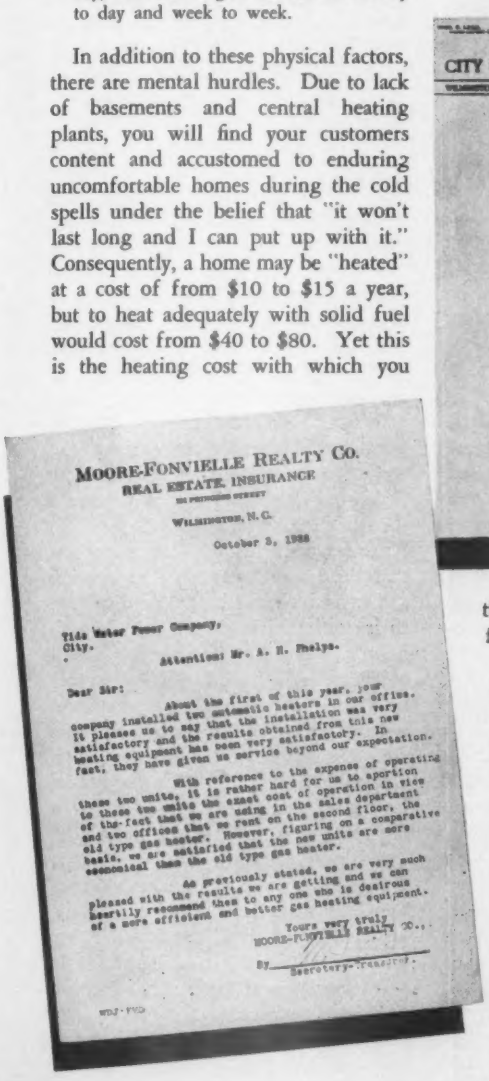
remark about the cost of operation, causes the first $7 to $10 bill increase to mean either a replevined heater or one very rarely used and a dissatisfied customer who will be very hard to persuade to consider gas heat ever again.

Starting a campaign in the milder climates you will undoubtedly find:

1. No basements. Houses built on piers with floors, mostly single, exposed to the weather.
2. Rather light house construction. In many cases shingles applied directly over sheathing and composition board directly to the studs. Rarely any insulation, or even building paper may be missing. Inadequate weather stripping if any, and very large glass areas.
3. Large variations in daily temperatures, possibly to the extent of 50° in a single day, and amazing variations from day to day and week to week.

In addition to these physical factors, there are mental hurdles. Due to lack of basements and central heating plants, you will find your customers content and accustomed to enduring uncomfortable homes during the cold spells under the belief that "it won't last long and I can put up with it." Consequently, a home may be "heated" at a cost of from $10 to $15 a year, but to heat adequately with solid fuel would cost from $40 to $80. Yet this is the heating cost with which you must compete! Put in your new-fangled heating gadget and to your dismay you will find their comfort zone landing around the 80's with a consequently high gas bill.

You will probably find a poor acceptance of gas as a heating fuel due to the fact that many homes will be counting on heating the kitchen and dining room with the range and cooking at the same time on the coal range. They will be minimum users of a tank water heater. Many of these minimum use customers live in the better homes which we will want to heat, but they will refuse to entertain the thought of gas heat because of the high monthly bill for using the heater just a few times a month for heating water for bathing.



MOORE-FONVIELLE REALTY CO.
REAL ESTATE, INSURANCE
[illegible] PRINCESS STREET
WILMINGTON, N. C.

October 3, 1938

Tide Water Power Company,
City.

Attention: Mr. A. H. Phelps.

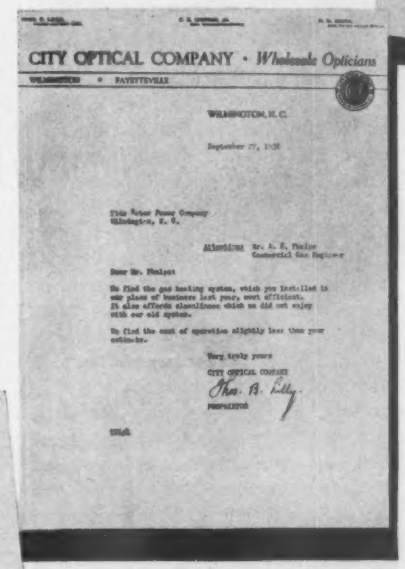
Dear Sir:

About the first of this year, your company installed two automatic heaters in our office. It pleases us to say that the installation was very satisfactory and the results obtained from this new heating equipment has been very satisfactory. In fact, they have given us service beyond our expectation.

With reference to the expense of operating these two units, it is rather hard for us to apportion to these two units the exact cost of operation in view of the fact that we are using in the sales department and two offices that we rent on the second floor, the old type gas heater. However, figuring on a comparative basis, we are satisfied that the new units are more economical than the old type gas heater.

As previously stated, we are very much pleased with the results we are getting and we can heartily recommend them to any one who is desirous of a more efficient and better gas heating equipment.

Yours very truly
MOORE-FONVIELLE REALTY CO.,
By _____
Secretary-Treasurer.



CITY OPTICAL COMPANY · *Wholesale Opticians*
WILMINGTON · FAYETTEVILLE

WILMINGTON, N. C.

September 27, 1938

Tide Water Power Company
Wilmington, N. C.

Attention: Mr. A. H. Phelps
Commercial Gas Engineer

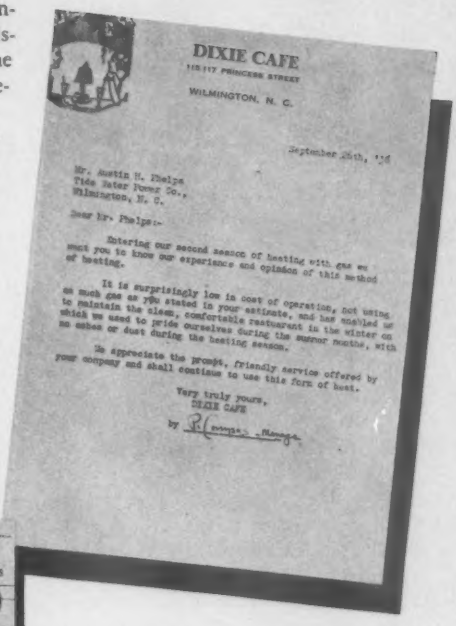
Dear Mr. Phelps:

We find the gas heating system, which you installed in our place of business last year, most efficient. It also affords cleanliness which we did not enjoy with our old system.

We find the cost of operation slightly less than your estimate.

Very truly yours
CITY OPTICAL COMPANY
Thos. B. Lilly
PROPRIETOR

TBL:B



DIXIE CAFE
[illegible] PRINCESS STREET
WILMINGTON, N. C.

September [illegible]th, '38

Mr. Austin H. Phelps
Tide Water Power Co.,
Wilmington, N. C.

Dear Mr. Phelps:-

Entering our second season of heating with gas we must you to know our experience and opinion of this method of heating.

It is surprisingly low in cost of operation, not using as much gas as you stated in your estimate, and has enabled us to maintain the clean, comfortable restaurant in the winter as which we used to pride ourselves during the summer months, with no ashes or dust during the heating season.

We appreciate the prompt, friendly service offered by your company and shall continue to use this form of heat.

Very truly yours,
DIXIE CAFE
by [illegible], Manager.

armory is actually heated by gas. These are the helps to our gas heating story and they promote the sale of gas for all four jobs in the home.

As the first few jobs are going to make or break your future chances, extreme care must be taken that they are properly sold and properly engineered. The customer should know exactly what the salesman is talking about, and the salesman should also know what he is talking about. No offhand estimates of consumption should be made, and no sales of appliances merely because the customer likes their appearance. You have two unknown qualities to contend with now—the weather and the customer's habits—so let us make the best possible use of the things we can feel and measure,—the design, operation and efficiencies of the various devices, and the design and construction of the house.

We chose the commercial establishment as our first point of attack. We chose this because to some extent we had some control over the hours of use of the device and more regular habits than in the home. We also had a sales story that touched the pocketbook as well as the comfort angle. We could talk of less markdown for soiled goods, greater customer acceptance, less spoilage of perishable goods, and no dangers of freezing over the weekend. We could point out that it was

Impossible as this situation looks, it can be solved and it should be solved for the sake of the additional load that follows in its wake. We can trace the sale of many automatic water heaters to the sale of a heating plant to a general contractor who previously used oil water heaters because he had used oil in his office for heat. Witness the expression on the housewife's face as she gazes at the three unit heaters in the A & P Super Market and realizes that a building as large as an

not necessary to pay some one to arrive several hours ahead of time to build fires and carry out ashes.

A complete survey was made of each type of business, its hours of operation, and probable number of air changes, before even broaching the subject of gas heat. Comparatively high ceilings in comparison to cubeage, with the second floors in many cases unheated stock rooms, convinced us that forced heat was going to be the only economical and satisfactory type.

The local meteorologist was consulted, and was of considerable assistance in explaining the type of climate we were in and the variations we could reasonably expect. For reasons that will be apparent later, it was arranged that the weather forecast be furnished us at noon each day. A gas company in a similar climate furnished us with the history and consumption of 72 commercial accounts. We analyzed these and applied the results to our own B.t.u. gas and gas rates.

A. G. A. Membership Helpful

Our selection of the type and make of heating equipment was entirely our own. Being in an out-of-the-way place, we could hardly expect the factory men to come to an area that never had sold any heating. Here our membership in the American Gas Association was invaluable.

Anticipation of sudden changes of outside temperature called for thermostat setting within two feet of the floor. Failing to find a device with split burners, we decided to valve off the line to reduce heater input and permit more frequent operation during milder weather to reduce stratification. Here the daily forecasts permitted us in the beginning to make a routine service call and open the valves on warning of temperatures approximating our outside minimum design. No serious impairment of combustion was noted within the range we reduced, and this problem was later reduced to telephoning the customer on expected cold weather. Having been thoroughly sold on the device in the first place, the customer in each case has cooperated in helping it operate efficiently and has taken pride in its economical operation.

We were forced in some cases to violate rules we had been taught to accept. In some cases, the old coal circulator had been installed in the center of the store and the only way to remove flue gases would have been to connect to the coal vent pipe (to which the customer objected), or to build a new vent through three floors to the roof. Finding the wall with the least chance of having an area of high pressure, we installed a vent right through ending in a mushroom ball head.

Special Heating Jobs

In certain small department stores with dressing and fitting rooms in the rear, we found the best spot for the unit to be next to the front door blowing down the side of the store not used to display heavy woolen overcoats. We put our heater on the overcoat side in one installation and nearly caused a riot between the comfortably dressed male clerks surrounded by hot wool and the lightly dressed female clerks surrounded by mirrors and silk stockings. The men would turn the thermostat down and within a few minutes the women would be back to turn it up. We changed the location and peace reigned.

An optical company had a special heating problem; 80° were required in the grinding rooms to keep the gums soft; 70° in the fitting and consulting rooms. What worried us was an area which faced a flight of steps to a rickety door. The waist-high partitions made necessary a boot to pick up this cold air, but its use was objectionable to the proprietors. We mounted the two heaters back to back with not over 18″ between the rear of the motors in the hope that in the narrow building the cross putt of the fans might pick up that air in a hurry. It did.

We guaranteed the bills of 33 customers the first year to the extent that if the consumption exceeded our estimate we would remove the device and return the entire purchase price. We had to make good on one. In that case the customer had consistently refused to operate below an 80° temperature and while we felt he was unreasonable we made good for the sake of convincing some of the skeptics that our guarantees and estimates meant something.

This year we have added close to a hundred. Rarely were we asked to guarantee. Our estimates were being taken as accurate. At the end of the first season we had written our users asking them their experience with gas heat and specifically how their bills had approximated our estimate. In every case the answer was "We find our actual cost below your estimate."

These testimonials were secured in an ethical manner. Instead of asking the merchant for one, we wrote him inquiring as to specific points in the operation of the device. We told him that we intended photographing his letter and using it not only in local areas but outside. We asked him to say nothing of which he was not absolutely certain. We told him that in the event he was not absolutely satisfied his reply would assist us in rendering completely satisfactory service. These inquiries went to chains with headquarters in New York, Pennsylvania, Virginia and Georgia, whose local stores we had heated, as well as to local stores. The response was most gratifying.

Gas Testimonials

One chain that had expressed an intention of eliminating gas entirely and had already done so in one of our largest cities came back with an emphatic testimonial for gas "in this area," and took oil, coal, and electricity apart in showing the decided advantages of gas "in the territory you serve."

We used these testimonials. We had the chance to startle the town at the end of the first heating season. We just listed the names of the merchants then heating completely with gas. No blurb for gas. Just a solemn statement that these merchants were now using gas exclusively for heat. We displayed their testimonials. Next to a prominent chain store we listed a small credit clothing store in the Negro section, and next to our most prominent jeweler we ran a bargain grocery store from the poorer area. Then we ran an advertisement saying that it was almost impossible to think of anything to buy, eat, or do that could not be secured in a gas-heated area.

From the point where a person contemplating gas heat was badgered by his friends and his wife consoled by her relatives, we have passed in two years to the point where we can advertise, "No new commercial structure has been built or renovated in the past year that has not used gas heat." Anyone

not saying "gas heat, of course," is very apologetic.

In attacking the home problem we found the same factors that made homes hard to heat, hard to keep cool in the summer. The solar load was dissipated through the house during what should have been the cooler hours of the evening.

Most of our homes were of the five- and six-room bungalow type. Construction of many was almost identical inside, although the exteriors varied. We found an area in the center of the house that could be converted to a heating room. We used an arrangement with an extension to the attic where four or more ceiling outlets delivered the warm air and the cold air traveled along the floor. A grill was installed in the bathrooms. By a pulley arrangement the top of the extension could be raised in summer to provide attic ventilation and some circulation in the rooms. In some cases the heating unit was actually installed in the attic, and a swing duct used to carry out the same idea, pulling the cooler night air into the rooms and the heated air out through the ducts and through the attic louvres.

Where possible we do take a cold air return from two extreme sections of the house. If this cannot be done between the joists, we try to box in along side the main girder, but all exposed duct work is insulated and boarded in. The dwelling, necessary place for the heater, habits of the family, and just what they expect in the form of heat have been taken into consideration. The installation has been made as nearly perfect as possible, with burners set by the test hand of the meter. Where conditions were doubtful a draught gauge has been used. Volume dampers were installed on every duct and locked after a perfect balance had been obtained. During the first season the customer is regularly visited to anticipate any trouble.

It is my opinion that these installations have been reflected in domestic sales. Committees of clubs, churches, and lodges, and those attending the theatre or shopping in the large stores have been impressed with gas as never before. We hope next year to be in a position to advertise "No building of any type has been built or renovated that has not included gas heat."

"Under the Gas Lights in Old New York," a scene played by the Quintones in the studio show portion of the first public utility television program in history which was broadcast during Consolidated Edison Day ceremonies at the New York World's Fair

First Utility Television Broadcast Reenacts New York's Gas History

MARKING the introduction of a new television technique, whereby a studio presentation is fused with a "spot news" broadcast in a single dramatic presentation, the first public utility television program in history, entitled "The City of Light," was broadcast over Station W2XBS between 8 and 9 P.M., Monday, September 11, during Consolidated Edison Day ceremonies at the New York World's Fair 1939. Produced by the National Broadcasting Company, in collaboration with the Consolidated Edison Company of New York, Inc., the program recorded or reproduced action at three separate points, including the television studios at Radio City, the Ford Exposition's Edison Institute Exhibit and the Consolidated Edison "City of Light" exhibit. New York City's pioneer gas history was reenacted during the studio show portion of the program, which presented a preview of commercial television offerings in the "World of Tomorrow." Warren Wade, NBC television producer, directed the program.

The "spot news" element of the telecast was furnished by a mobile unit pickup of a World's Fair ceremony at the Ford Exposition in which Floyd L. Carlisle, board chairman, Consolidated Edison, threw a switch linking the historic Edison "Jumbo" dynamo with the "City of Light." Coupled with the "Jumbo" ceremony in the telecast was the National Broadcasting Company's first studio show ever written around a "spot news" broadcast. Sent by coaxial cable from Radio City's television studio to the transmitter atop the Empire State Building, the show included a reenactment of the first gas illumination of the New York City home of Samuel Leggett, first president of the New York Gas Light Company, a predecessor of the Consolidated Edison Company of New York, Inc. (See frontispiece photograph.)

Seventy NBC technical men were engaged in the mobile unit, studio and transmitter phases of the production. Besides arranging for the hook-up, Consolidated Edison engineers provided special lighting facilities for the World's Fair portion of the telecast. In addition, the utility engineers saw to it that when Mr. Carlisle threw the switch, energy generated by the veteran dynamo initiated the lighting mechanism of the "City of Light" diorama and the "water ballet" spectacle outside the Consolidated Edison building. Thanks to the triple tie effected by the program producer, television observers saw more of what was going on than did the distinguished guests gathered for the ceremonies. Consolidated Edison World's Fair committeemen responsible for the program were Clarence L. Law, vice-president; Harold S. Sutton, executive assistant to the chairman of the board, and Henry Obermeyer, assistant vice-president.

Speakers at the Consolidated Edison Day ceremonies included Mr. Carlisle, Ralph H. Tapscott, president, and Oscar H. Fogg, vice-chairman of the board.

Dedicate New Home for Gas Laboratories

A. F. Bridge, vice-president and general manager, Southern Counties Gas Company of California, and member of Laboratories Managing Committee, (right) and W. H. Vogan, supervisor, Pacific Coast Branch Laboratories, attach commemorative plaque to wall of new building

AN outstanding event in the history of the gas industry's far-reaching research and testing program was the dedication on August 31 of a permanent home for the Pacific Coast Branch of the American Gas Association Testing Laboratories in Los Angeles. This expansion of facilities was widely hailed as a significant forward step calculated to safeguard further the interests of gas consumers.

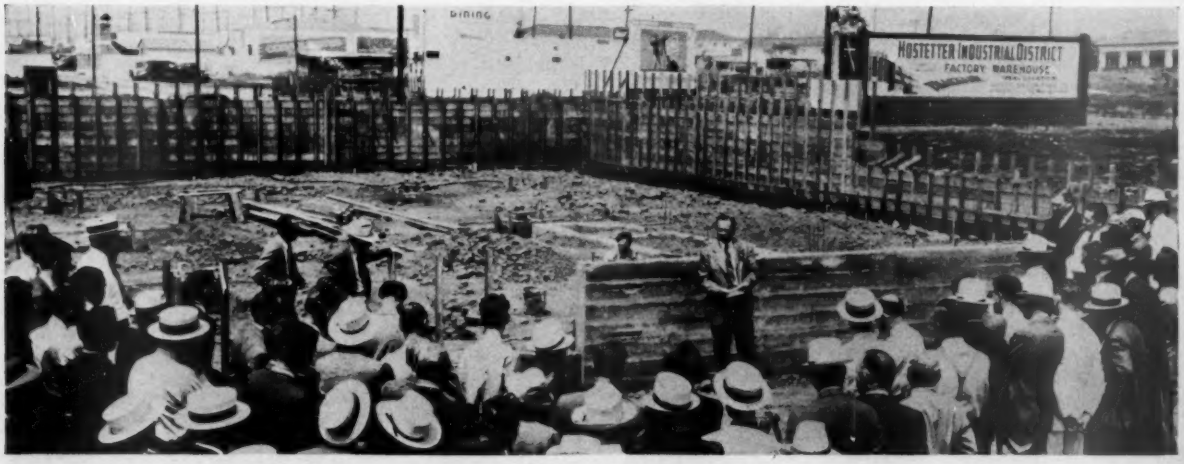
Ceremonies marking the laying of foundations for the $40,000 structure were held at the site of the building, 1425 Grande Vista Avenue, Los Angeles, California. Gas appliance manufacturers, utility executives and other men prominent in civic and business affairs took part in the ceremonies, at the end of which a commemorative plaque was placed at the front entrance of the building. It is estimated that the new Laboratories' structure will be ready for occupancy by November 1 of this year.

Acting as master of ceremonies, R. G. Logue, vice-president, Ward Heater Company, introduced the principal speaker of the day, Arthur F. Bridge, vice-president and general manager of the Southern Counties Gas Company and a member of the Laboratories Managing Committee. Mr. Bridge traced the origin of the American Gas Association and the growth of the Laboratories. He pointed out that due to the increased volume of appliance testing as well as the increased number of manufacturers on the West Coast, it was necessary to provide enlarged testing facilities and to give additional service to manufacturers located in that area.

Figures cited by Mr. Bridge to indicate the trend showed that for the past two years the volume of test work

IN THESE DAYS WHEN THE PUBLIC IS INCREASINGLY DEMANDING EVIDENCE THAT PRODUCTS OFFERED FOR SALE BE BUILT TO RECOGNIZED STANDARDS AND PERFORM AT PROPER EFFICIENCIES THE GAS INDUSTRY CAN POINT WITH PRIDE TO THE FACT THAT IT HAS BEEN A PIONEER IN TESTING ITS APPLIANCES FOR THE BENEFIT OF THE CONSUMER AND WAS AMONG THE FIRST TO BASE THOSE TESTS ON STANDARDS ESTABLISHED IN ADVANCE BY FEDERAL AGENCIES NATIONAL TECHNICAL SOCIETIES CONSUMER ORGANIZATIONS GAS COMPANIES AND GAS APPLIANCE AND EQUIPMENT MANUFACTURERS. THE DEDICATION OF THE PERMANENT HOME OF THE PACIFIC COAST BRANCH OF THE AMERICAN GAS ASSOCIATION TESTING LABORATORIES MARKS ANOTHER MILESTONE IN A MOVEMENT IN THE PUBLIC INTEREST AND ONE THAT HAS BEEN OF INCALCULABLE BENEFIT TO BOTH THE CONSUMER AND THE GAS INDUSTRY. IN BEHALF OF THE EXECUTIVE BOARD AND MEMBERS OF THE ASSOCIATION I EXTEND TO YOU OUR BEST WISHES FOR THE FULLEST MEASURE OF SUCCESS.

Text of congratulatory telegram to Mr. Bridge from President Conrad N. Lauer on the occasion of the dedication



Mr. Bridge dedicates the new $40,000 Pacific Coast Branch Laboratories which is expected to be completed by November 1

has increased an average of 40% over the preceding twelve-month period and currently it exceeds that of 1933-34 by more than three to one. There are now more than 90 manufacturers who submit their gas appliances to the Los Angeles laboratories for testing. Greater refinement in approval standards has also increased the test work, Mr. Bridge stated, pointing out that today a range must meet some 550 requirements as compared to 270 in 1928.

The Laboratories' functions were outlined briefly by Mr. Bridge as follows: 1. Development of national construction and performance standards for gas appliances and accessories. 2. Testing and certifying appliances and inspecting factory output to check compliance with these standards. 3. Providing appliance manufacturers with facilities for developing, re-designing and testing their products, and with expert technical advice, upon request. 4. Research investigations covering various phases of our industry but principally pertaining to gas utilization. 5. Education, such as instruction of employee groups, issuance of information for the consuming public regarding appliance certification, publication of research bulletins, etc. The standardization, research and educational activities are conducted at the Cleveland Laboratories.

Seal Nationally Accepted

Acceptance of the industry's program is proven by the fact that approximately 95% of all gas-burning appliances marketed in the United States and Canada bear the Laboratories' seal of approval, he pointed out. More than 99% of the appliances submitted for test require some alteration in order to meet approval standards, which shows the need for these specifications and enforcement. Mr. Bridge stated that the Laboratories have played a leading part in the great improvement made in gas appliances in recent years.

Other speakers at the dedication ceremonies were E. H. Poe and Miss Jessie McQueen, both of the American Gas Association, and Carl A. Swigart, of the Pacific Coast Gas Association. Mr. Swigart also read numerous telegrams expressing good wishes for the continued success of the Laboratories' program.

The new building will be a one-story structure covering an area of 100 x 91½ feet, built of reinforced concrete and stucco over a steel frame. The exterior design is modern, the only decoration being four large porcelain replicas of the famous American Gas Association Testing Laboratories' "Blue Star Seal" set in the front and sides of the building.

Offices for the supervisor and his staff are located across the front of the interior. Six of these, including a library and a committee room, are provided. Four additional rooms are furnished for use of manufacturers.

Laboratories for testing appliances are situated in the rear half of the building and are arranged in a manner similar to the Cleveland laboratories. One room is devoted to the testing of central heating equipment, another to gas ranges, and a third to gas water heaters.

A staff of 20, including 17 graduate engineers, is required to handle the work that passes through the Pacific Coast branch.

Solving a Service Problem

By C. T. HENDERSON

The East Ohio Gas Co., Cleveland, Ohio

A TYPICAL illustration of what a natural gas company has to do to maintain a supply of gas is contained in a report of some work The East Ohio Gas Company just completed for the town of Ravenna.

The supply line to Ravenna takes off from Kent, a pipeline distance of 6½ miles. There had to be some important repair work done on this line, upon which Ravenna is dependent for its gas service. The only way to get this job of reconstruction done was to shut off the supply of gas during the work. There was no way of sending gas around, as is very often possible in similar problems. This is the way the company solved that problem:

First, an estimate was made of the time the repair work would take. Carefully figured, this amounted to at least 30 minutes after everything was in readiness for the work to proceed. Next, as a margin of safety, the pressure department allowed one hour. Then a pressure gauge was installed on the Ravenna end of the section of pipeline to be worked with.

The gas measurement department thereupon proceeded to do its calculating. The only way to keep Ravenna supplied during the progress of the work was to pack enough gas in that end of the line and in the distribution system to carry the town until the work was finished.

With a pressure of 180 pounds indicated by the pressure gauge, which is normal, there would be in storage in the Ravenna distribution plant 47,900 cubic feet of gas, of which the town would use 14,500 cubic feet in one hour. Unfortunately, however, with the line closed off the 180 pounds pressure naturally could not be maintained. Hence, the pressure department figured that with the use of gas the pressure could drop from 180 pounds to 30 pounds and still the Ravenna requirements for one hour could be met.

Everything was in readiness—everybody was in his place—a 10-minute allowance was made for any possibly necessary change in orders—and at the precise minute the gas supply was shut off from Ravenna at the Kent end of the line by means of a gate already there; and, instantaneously, a gate on the Ravenna end of the line and at that end of the repair work was closed.

The work actually required 40 minutes—10 minutes more than the estimate but still 20 minutes on the safe side of service. The amount of gas which Ravenna actually used in that period was 16,724 cubic feet. The situation could have been handled without interruption of gas service in Ravenna had the pressure dropped from the initial 180 pounds to 30 pounds in the Ravenna end of the line. But the pressure actually dropped to only 140 pounds, indicating that the work could have taken from an hour to an hour and a half longer than it really did, or, another way of putting it is that this was an additional margin of safeguard to gas service.

Ravenna does not know yet that for 40 minutes it was entirely shut off from a gas supply, and that the whole problem was mathematically worked out, checked and re-checked, and everything made ready for the shut-off before it was done.

The pressure department, main trunkline department, engineering department, gas measurement department (which is an extremely technical one), and the gang doing the actual physical work formed a single unit by planning.

Michigan Utility Sold

THE Peninsular Utilities Company, operating gas utility supplying the towns of Calumet, Laurium and Lake Linden, Michigan, has been sold by the American Utilities Service Corporation, Chicago, Ill., to Edwin H. Hansen of Calumet, Michigan.

Mr. Hansen will continue the management of the property in the capacity of president and general manager.

City Promotes Gas in Big Way

THE City of Richmond is now advertising gas, its chief income producer, with a sign painted on the gasholder at the Fulton Gas Works, said to be the largest sign south of New York City, and readable for a distance of more than three miles.

The sign, "Save With Gas," moves up and down as the gas is used out of and pumped into the big 2,000,000 cubic-feet gas holder, and when at its maximum height, the top letters of the sign are 170 feet from the ground. The letters are painted in chrome yellow, noted for its visibility and used on all aeroplane markers.

The word "Gas" has letters twenty-five feet high, the height of the entire sign being sixty-eight feet with a width of 106 feet. The sign is part of the Utility Department's new promotional program and supplements the department's newspaper, radio and billboard advertising campaign.

In the West End, on the Moore Street holder, is another sign worded "Use Gas—It's Cheaper." This sign, while not quite so large as the one in Fulton, is visible to the north and southbound traffic on Chamberlayne Avenue, Brook Road and Lombardy Street, and is visible as far as the north end of the Fifth Street Viaduct.

Gas Replaces Other Fuels in Texas Sanatorium

STRIKING boldly across seventeen miles of West Texas plains, one of the largest natural gas service lines in the Southwest now brings this modern fuel to one of the largest tuberculosis sanatoriums in the United States.

Constructed by Lone Star Gas Company pipe line department during July and August, the line went into service August 10, replacing all other types of fuel, principally fuel oil and electricity.

The institution with capacity for 962 tuberculosis patients is operated by the State of Texas at Sanatorium, Texas, and is now 100 per cent dependent upon natural gas for heating and cooking and partially dependent upon this fuel for electrical generation, according to engineering specifications.

Boon to Working Wife

SOONER or later, we get around to a discussion of food, because we're so interested in good food and new ideas in edibles. We think this is the prize food story of the week:

There's a butcher shop at 1508 Kings Highway, Brooklyn, N. Y., called the R & H Market, where you dash in of a morning and order your meat, tell how you'd like it cooked and what time you're going to serve dinner. Stop on your way home after business and it comes piping hot from the fire, broiled, boiled or roasted. (Modern gas-fired equipment sold by the Brooklyn Borough Gas Company does the job.)

Flatbush husbands no longer have cause to complain about delicatessen meals and housewives are playing bridge until it's time to set the table. Everybody's happy, including the owner, who's doing such a land office business that he's going to add new stoves and things to take care of the demand. Everything's spic and span too. There's even an ultra-violet ray arrangement in the ice boxes to keep the meat fresh and germ free.

—*Brooklyn Eagle,* August 3, 1939

Convincing Displays Build Industrial Gas Sales

TEN minutes on Clifford Street, Detroit, watching the downtown crowds pass the display windows of the Michigan Consolidated Gas Company, is enough to demonstrate the fact that attractive window displays can be real sales builders. Not only is the downtown business-man traffic impressed with the role gas plays in manufacturing such products as extruded seamless tubing or brick veneer (see photograph), but the customer companies whose products are demonstrated will appreciate the promotional help.

Hale A. Clark, industrial engineer, Michigan Consolidated Gas Company, for several years, has been making the most of street-level show-window space in the downtown gas company building. He changes his industrial department's windows each month on a regular schedule. The accompanying pictures show his two latest efforts. By this time many a Detroit resident is an ardent fan of the gas company's "industrial corner" and has learned a lot about the inner workings of industry in his city while en route to the office or the department store.

The results of industrial window displays in Detroit are not theoretical—they stimulate inquiries each month and in several cases have led to important non-residential mites of load. It is also significant that the general public, to whom gas is only a domestic servant, seems as intrigued by the industrial displays as by the ranges and water heaters merchandised in the other display windows of the building.

If you haven't thought of it lately, again give consideration to your best industrial customers as the subjects of display sets in your gas office windows—and remember that enlarged photographs, simple wording, and a sample or two of the customer-company's product goes a long way towards making a window which prompts the thought sequence: "This is *my* town—that industry is *my city's* industry—*gas* helps to make that industry possible—perhaps gas can do some good for *me.*"

Stage A Gas Show . . . *And Make It the Sales Event of the Year*

Harry Swenson

GOOD merchandise presentation should be an integral part of every gas company's promotional program whether it is done on company premises or in dealer locations. But make a note of the fact that good display means more than a row of ranges lined up like orphans on visiting day. It means sales-compelling merchandise exhibits.

Now every gas company is not in a position to make impressive displays nor are the appliance dealers who have too many irons in the fire to be counted upon to provide bang-up gas appliance exhibits. But I say again that all other promotion is only partially effective unless emphasized through visible presentation of the equipment and service we sell.

The Eyes Have It

We cannot make the public conscious of the tremendous improvement in gas appliances merely by talking and hoping that some day they'll stumble across a modern gas range and fall in love with it. Unless they are face-to-face with a modern range they'll never know that the gas range no longer looks like a heap of scrap iron bound for Japan. That's why a show will let them know!

Let's borrow a page from the automobile makers' sales manual. They had the right idea. We never knew we needed a new car until they showed us. Regular as Valentine's Day every year they come around and tell us that last year's car is out of date and prove it by showing us a better one. With masterly showmanship that outdoes the theatre they contrive a merchandise show that has become a commercial institution. They know a show will let them know what's new in locomotion.

Of course it is beyond us to do anything of that magnitude but why shouldn't the gas companies in their respective localities organize a colorful, interesting Gas Appliance Show. We too have plenty to show and new models are coming as fast as war news from Europe. Scheduled as an event, generously advertised and well carried out such a local gas company appliance show will let them know that gas appliance engineering and gas merchandising is a live, alert industry with something more to offer the homes of the community than a monthly bill.

Suppose, for the sake of having a peg to hang the idea upon, that the gas company sponsored and organized this promotional activity in which the dealers and manufacturers participated and devised a first-rate appliance show displaying the latest and smartest in gas equpiment. It may not be necessary to rent the local Madison Square Garden; a vacant store, centrally located may be just the thing. Colorful exhibits and appliances in environmental surroundings can make it as interesting as anything else in town.

There isn't a normal woman who wouldn't want to see the latest in kitchen design. Water heaters can be shown with beauty appeal and home conveniences emphasized with heating equipment. But do it big! Small ventures have only small results. Don't call it a show unless there's something more to see than an acre of porcelain enamel.

Glorify Gas Equipment

We know the automatic gas range does practically everything but set the table but the public doesn't know it, unless we show it and dramatize it. A heating plant can't speak for itself and standing there in its lonely bulk it isn't as interesting as a chicken coop.

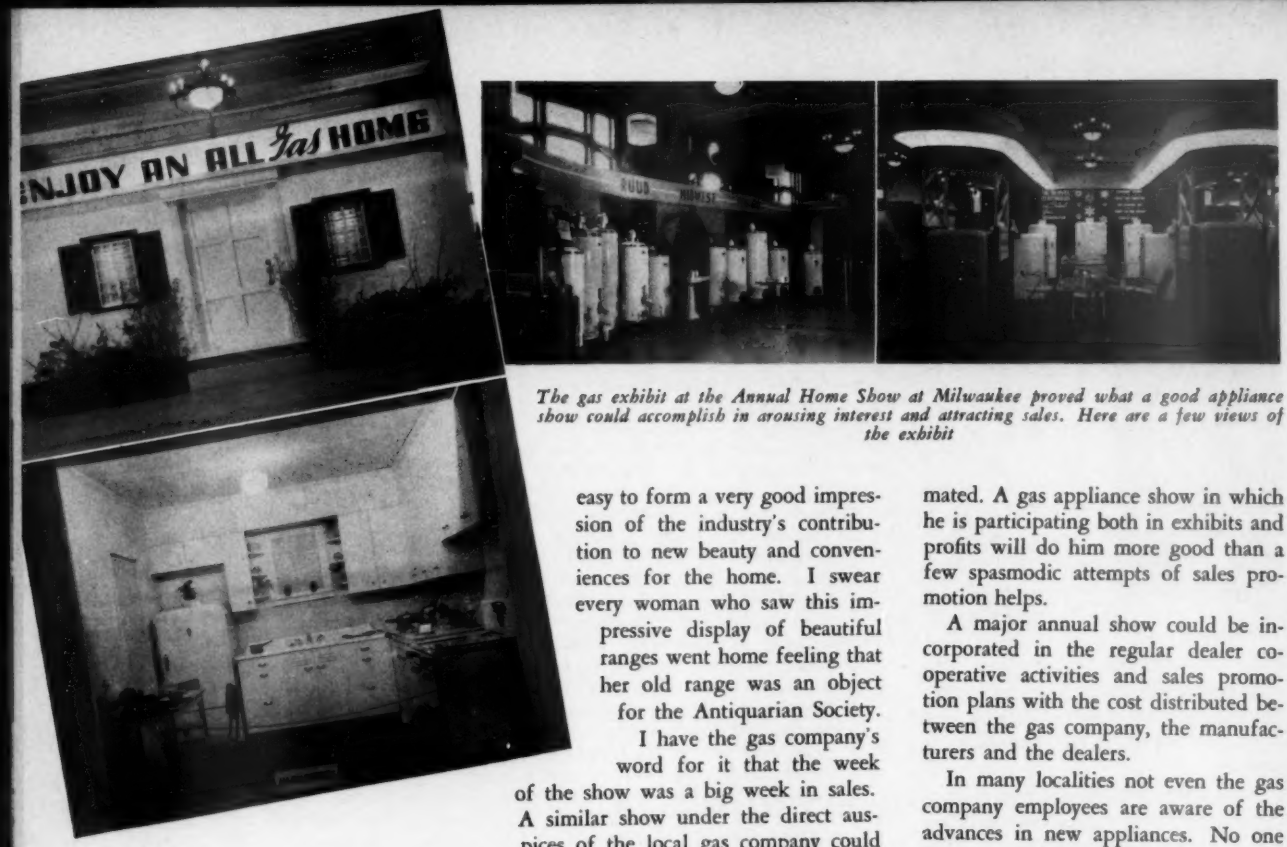
In the entire catalog of merchandise there is nothing less articulate than gas appliances. The beauty appeal is limited and in most cases they represent work to be done or a bill to be paid, neither thought conducive to instantaneous affection for the appliance. If any merchandise needs glorification it is ours. Sure, we know the modern gas range is beautiful, the trick is to make the public see it.

If its selling appeal is directed to women it must be worded and presented in the way they want to hear it. The dull and prosaic will never get their attention, they have plenty of that at home. To women shopping is an adventure that calls for staging and setting not only of the merchandise but of the show itself. Two dozen ranges in a row will excite her no more than

- **Widely recognized as an outstanding authority in the home planning and display fields, Mr. Swenson needs no introduction to readers of the MONTHLY. Among his previous contributions have been the following: Demonstration Homes, May, 1938, page 167; The Art of Modern Window Display, April, 1938, and Evaluating Model Gas Kitchens, March, 1937, page 95.**
- **In the accompanying article, taken from his address before the natural gas convention last May, he argues eloquently and convincingly for gas companies to promote annual gas appliance shows in their respective territories. If successful in the automobile and numerous other industries, why not in the gas industry, he asks. It's a stimulating thought and one with cogent possibilities—which some companies have already seen and successfully applied.**

By HARRY SWENSON

Director, Displays and Home Planning, The Peoples Gas Light & Coke Co., Chicago, Ill.



The gas exhibit at the Annual Home Show at Milwaukee proved what a good appliance show could accomplish in arousing interest and attracting sales. Here are a few views of the exhibit

two dozen eggs in a basket. Women, at least the larger number, are impressed by beauty, order, and charm; let these be used as a dramatic force in selling.

The public expect us as merchandisers to provide things novel and interesting and shows its appreciation by increased buying interest. The artistry of color, the beauty ot order, the force of words, the ingenuity of arrangement, motion, lighting effects and all the tricks of the theatre can be used to make the gas appliance show the commercial event of the year.

A Show That Succeeded

The Annual Home Show at Milwaukee this year furnished an excellent example of what a gas appliance show may be. As part of the general show the gas exhibit was kept a separate exhibit and I've never seen anything better of its kind.

The appliances were displayed not like so much hardware but like stylish home furnishings. Here was a chance to see all types of equipment looking its best. In flattering surroundings made gay with color and light it was easy to form a very good impression of the industry's contribution to new beauty and conveniences for the home. I swear every woman who saw this impressive display of beautiful ranges went home feeling that her old range was an object for the Antiquarian Society.

I have the gas company's word for it that the week of the show was a big week in sales. A similar show under the direct auspices of the local gas company could be as effective and serve as the major sales promotional activity of the year.

Dealer Tie-Ups

Of course it would cost money, everything costs money but I'm sure it would be bread and water. There is bound to be a certain amount of hit and miss activities in connection with appliance dealer programs. In many places there are only temporary and indifferent tie-ups with dealer activities.

Well knit and thorough company-dealer promotion is a rarity and no one can be so optimistic as to expect the dealer to do much sales promotion of his own accord or entirely out of his own pocket. He isn't equipped to do it and besides he feels he shouldn't have to.

Remember the dealer is daily becoming a strong and valuable link in utility merchandising, not only where he is the only one making appliance sales but almost as much in localities where he supplements the gas company's own selling force.

Good dealer relations and good dealer promotion cannot be over-estimated. A gas appliance show in which he is participating both in exhibits and profits will do him more good than a few spasmodic attempts of sales promotion helps.

A major annual show could be incorporated in the regular dealer cooperative activities and sales promotion plans with the cost distributed between the gas company, the manufacturers and the dealers.

In many localities not even the gas company employees are aware of the advances in new appliances. No one can expect them to set out on a pilgrimage from dealer to dealer to learn what's new in equipment but I think we can count on them to visit the gas appliance show.

I can think of no better clearing house for authoritative, first-hand information of gas service than at such a show where all attention is directed to the appliances. I can think of no better way to stress the obsolescence of most existing home equipment than by an impressive showing of all the new appliances for cooking, heating, water heating and refrigeration. Many of these can be shown in true-to-type environment settings, cheerful, well-designed kitchens and clever, believable basement rooms made part of the living area because of gas.

The utilization and proper application of gas and the many services available should be stressed in connection with home building and home modernization. Three subjects never fail to get attention: Sex, Style, and Home. Since our business is directly connected with home and by virtue of the smartness in design with styles, it should not be difficult to draw atten-

tion and attendance to a show of home conveniences.

It is about time we got behind the headlines of our national advertising and prove the truth of the statements by visual exhibits. The appearance of every such ad should be linked with continuous displays and not only by the gas company but by the dealers. The National Advertising Committee has taken great pains to illustrate the advertisements in an extremely effective way. Window and floor displays fall very short of supporting these impressive illustrations. In our current thinking of gas sales promotion, effective exhibits should be a real factor.

During the gas show alert dealers would naturally want to conduct special sales to profit from stimulated interest and naturally this would be the time for concerted advertising and Home Service activities.

It may not be the best policy to let all the oratory be directed to the pocketbook and carry on actual selling at the appliance show. It may be most effective if ostensibly an advertising activity, though I recall while this was the intention at the Milwaukee Home Show, orders had to be taken right in the exhibit and nobody seemed to get sore about that.

We have our yearly Auto Show, our National Apple Week, See Your Dentist Week, Call Your R.C.A. Dealer Week, and a long list of other weeks both silly and sensible. Why shouldn't there be a Gas Appliance Week, or month or whatever time is best suited to the locality? We're also in business, so let's talk about it. All these different weeks have been successfully done, believe it or not, but they've been so because of being concentrated, emphasized activities supported by advertising in every way and made spectacular by every available means.

We all know that in spite of all the national advertising, the recent crop of all-gas-homes and that hardy perennial, the cooking school, there are thousands who know nothing of modern gas appliances. They have never heard the click of a valve in a really modern range, never peeked into a gas refrigerator and think the minute-minder a hero in the American Revolution! They belong to that great army who only believe what they see and touch, they never read an advertisement through and never go to a cooking school. They have to be convinced by seeing for themselves. For them, and they are legion—a show will let them know.

REMEMBER
GALLON FOR GALLON HOT WATER COSTS NO MORE WITH AN
AUTOMATIC GAS WATER HEATER
Tops in baths
HOT WATER FROM A MONEL TANK IS CLEAN AND INVITING
MODERN GAS RANGE

Recent window displays of The Peoples Gas Light & Coke Company which illustrate the author's theme that "to show merchandise is more important than to describe it." Attention-compelling, eloquent displays such as these, embodying all the elements of good showmanship, are a paramount part of any good promotional program. They not only stimulate the desire to own but make buying easy and pleasant

Large Class Enrolls in Columbia Course

DURING the last two months 41 employees of the Minneapolis Gas Light Company have been enrolled in the course in American Gas Practice offered by University Extension at Columbia University.

Sponsored by the American Gas Association, the course is conducted by correspondence and has been in operation since October 1, 1925. The total number which have been enrolled in it during that time is 1987, and includes many men now prominent in the gas industry.

Information regarding the course will be furnished upon request by K. R. Boyes, secretary, American Gas Association, 420 Lexington Avenue, New York City; or Professor J. J. Morgan, Columbia University, New York City.

"Join the Swing" . . . *A Slogan That Popularizes Gas Heating*

H. P. Morehouse

By H. P. Morehouse*

Chairman, House Heating Committee on Improved Selling Practices

THERE seems to be a growing feeling in the industry that while gas heating may be the least profitable service which gas companies sell when considered on the rate per therm, it is nevertheless a very necessary and important branch of the business. It is much easier to hold and advance the gas load for cooking, water heating and refrigeration, when gas heating is used as the spear head of the drive.

With this growing appreciation of the part that gas heating is playing in the advancement of the gas industry, managements are giving steadily increasing attention to popularizing gas for heating.

Everybody's Doing It

One of the national movements sponsored by the American Gas Association to help get faster acceptance for gas heating is the "Join the Swing to Heating by Gas" slogan. The point this slogan attempts to get over is the "everybody's doing it" angle. It capitalizes on the fact that Mr. Jones does what his neighbor does, or moves along with what he thinks the majority are doing. This is particularly true where there is considerable new house construction because, if Mr. Jones is going to modernize he wishes to change to the newest thing and his judgment of modernity in house renovation is influenced by what he finds being adopted in new houses.

Many gas companies, in fact over one hundred, who have thus far identified their advertising with the "Join the Swing . . . ." movement, have found this slogan idea a very helpful instrument for getting public acceptance. They are using it in many ways, such as lawn signs, truck signs, bill boards, direct mail and newspaper advertising, stickers, window signs, blotters, lapel buttons, pencils, playing cards, bridge score pads, etc.

Lawn sign carrying the national gas slogan

There has been some reluctance on the part of a few gas companies to adopt the slogan because they were under the impression that the idea originated with a manufacturer, and they were hesitant about using any manufacturer's promotional material. We should like to correct the idea that this slogan was developed by any manufacturer. It was suggested by the Heating & Air Conditioning Committee of the American Gas Association, and was submitted to the Association of Gas Appliance and Equipment Manufacturers for their approval. It was officially adopted by them and several manufacturers have been cooperating very helpfully by using it in their promotional advertising.

While the idea of a national slogan is generally accepted as having value, its greatest accomplishments are obtained from its continual repetition. To use the slogan for one year and then drop it robs the user of the dividends which this type of promotional activity is capable of paying.

It is hoped that those who have used the slogan will continue its use both for their own benefit and for the benefit of the industry.

How To Get Them

To simplify the use of this slogan the Association has set up sources of supply for the various promotional items that have been prepared. These sources of supply have been established to give every gas company the price benefit of volume manufacturing costs. The slogan is not copyrighted and if better prices on any of these items can be obtained locally there are no objections to this procedure.

The sources of supply, many of which have the material already prepared for delivery, are as follows:

LAWN SIGNS:

Company: E. A. Shank Sign Co.
Address: 54 West 21st Street
City: New York City

NOTE: This sign in the accompanying illustration is size 28" x 40" and hangs from a tripod. The caption is prepared to tie in the builder, or installer, and reads "And Another Home Built by ..... Joins the Swing to Heating by Gas."

WINDOW SIGNS
TRUCK SIGNS:

Company: E. A. Shank Sign Co.
Address: 54 West 21st Street
City: New York City

BILLBOARD POSTERS:

Company: Thomson Symon Co.
Address: Terre Haute, Indiana

PENCILS:

Company: Pencil Supply Co., Inc.
Address: 420 Summit Avenue
City: Union City, New Jersey

*General air conditioning representative, Public Service Electric & Gas Co., Newark, N. J.

BOOK MATCHES:
Company: Ohio Match Sales Co.
Address: 370 Lexington Avenue
City: New York City

BLOTTERS
DOOR KNOB HANGERS
PRICE TAGS:
Company: A. S. Gilman, Inc.
Address: Cleveland, Ohio

PLAYING CARDS
BRIDGE SCORE PADS:
Company: Atlantic Playing Card Co.
Address: 220 East 23rd Street
City: New York City

GUMMED LABELS:
Company: Ever Ready Label Corporation
Address: 141 East 25th Street
City: New York City

Reviews Three-Way Gas Research Program

Louis Ruthenburg

TOMORROW'S business success will come out of the laboratories of today," Louis Ruthenburg, president of Servel, Inc., of Evansville, Ind., stated in a communication sent to stockholders which reviews three phases of research emphasized by the company.

Mr. Ruthenburg pointed out that development work in commercial gas refrigeration and gas air-conditioning occupies an important part in the Servel research program in addition to the major attention given gas household refrigeration.

"Ninety-six men are constantly employed in research and engineering work at Servel. Specifications for 1940 gas refrigerators are already completed.

"Development work on *commercial* gas refrigeration also has an important place in the program of research. Two-and-a-half years ago, the first commercial installation was placed on display. At that time, field tests were begun. In all, some 200 units were installed in 50 cities for experimental purposes. As a result of this work, we are in a position to enter the commercial refrigeration field with well-tested absorption refrigeration equipment.

"A third phase of research at Servel is concerned with gas air-conditioning. This work, which has been under way in our laboratories for several months, is now advanced to the stage which justifies a limited number of installations for field tests. In the Good Housekeeping model home at the New York World's Fair the first of these has been installed."

Letter from a Self-Made Plant Superintendent to His Son

Dear Son:

I enjoyed my visit with you at the plant except that I think you are a little fat-headed about your promotion. That will wear off soon, I am sure. What I want to write you about is the way you were raving about personnel men and your description of their efforts as "fancy work."

It is almost two years since I quit work at the plant and took my pension. In those two years I have had plenty of time to think. I have been getting a bird's-eye view of life in a big plant which may be helpful to you in handling your men. I am naturally very anxious to give you the benefit of my new viewpoint. I only wish that thirty and forty years ago I could see as clearly and think as straight as I can today, now that I have got away from the smoke and dirt and the everlasting troubles.

The thing that seems to be troubling you most is your very understandable impatience with the slow progress that personnel people make in getting results along the lines of more careful selection of new men, better supervision, more intelligent training, and so on. I can best explain their slow progress by a comparison with an egg. If you take a fertile egg and let a hen apply a small amount of heat to it steadily for about 400 hours, you will develop, in the hatching of the chicken, a complete, living, useful organism. If, on the other hand, you put that same egg in boiling water for eight minutes, applying the same total amount of heat, you would have killed the organism and would have only the almost useless thing we call a hard-boiled egg. What I mean to demonstrate by all this is that education is a painfully slow process that should not be applied with great heat or with great speed. To obtain the desired effect, education must be given in doses of a teaspoonful at a time, regularly, over a period of years.

I can remember very well about twenty years ago when we used to begin to see personnel men around at conventions, conferences, etc. Back in those days anybody who dared to talk in such terms as "management psychology" or "a science of human relations" was looked on with suspicion, because almost nobody in a gas plant had ever heard of them. Because they were new, plant men were antagonistic and on the defensive.

The engineering profession used to be up against exactly the same thing. Back in the 90's when I was young in the business, most everything was done by guess and by god. There were some engineers around the plant, of course, but nobody took them very seriously. Contrast this with the situation today. There are mighty few things around a modern plant that have not been *engineered*—by that I mean, planned and executed in the light of long experience—distilled and blended into systematized knowledge.

You can observe plenty of evidence of the thought and patient engineering that have been built into the modern automobile. Now contrast that with the study, or lack of it, that is given to that infinitely more complex and delicate mechanism, which is a *human* machine.

The business of handling men has changed a whole lot from the days when I could fire a man because I didn't like the color of his hair. Working with a handful of men is one thing—managing a thousand is another. In music, one man can play alone and play off key, and play in his own time. But when you put him in an orchestra, he must stick to the music and keep on his toes to follow the leader. I think sometimes that this is one of the best comparisons to use in trying to find the causes of discord in your organization. In other words, too many men want to play solo.

Another comparison to keep in mind when you are thinking about these things is the similarity between the operation of a big organization and the functions of the human body, particularly the nervous system. If you have a well-balanced nervous system, your instructions from the head to the little toe will be accurately transmitted, thoroughly understood, and correctly executed. Equally important is the accurate transmittal of the response to the instructions. If the instructions were based on hasty, ill-advised decisions, you ought to get a frank, fearless expression of any unfavorable reaction to them from supervisors (or employees).

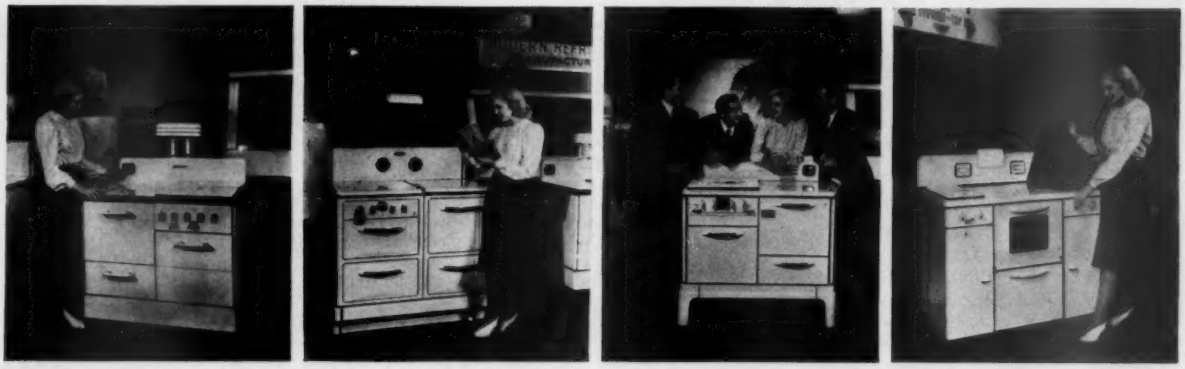
In the lives of personnel men one of the minor difficulties is the vagueness of the term "personnel work." Twenty years from now I hope there will be a term that defines it something like this: *the science of coordinating large-scale human effort while preserving the integrity of the individual.*

Well, son, I guess you have enough of this by now. Just remember, acquiring a true understanding of human relations in industry is like learning to control some of the processes in gas plants, such as distilling, purifying, enriching, conveying. All these processes of yours have their counterparts in employee relations.

Twenty-five hundred years ago a Chinese philosopher said the whole thing in fourteen words. The name of the man was Confucius. He was born in the year 551 B.C. He said something like this, "He who would be chief among you must first be the servant of all." Maybe he was the first personnel man.

Dad.

Modern Gas Ranges Win Hollywood Approval



In Metro-Goldwyn-Mayer's forthcoming short subject, "Drunk Driving," several models of up-to-date gas ranges are featured in a home appliance store. Appearing in the pictures above are Mary Beth Hughes, Dick Purcell, Dave Miller and Richard Lane, all M-G-M players. While this production is underway, gas companies are tying-in their promotion efforts with the current M-G-M feature, "The Women" which makes use of three all-gas kitchens.

Another picture of special interest to the gas industry which will be released sometime in October is the United Artists production, "The Housekeeper's Daughter." This picture also makes excellent use of gas ranges and refrigerators and includes among its players Joan Bennett, Adolph Menjou, Peggy Wood, John Hubbard, William Gargan and George E. Stone. A complete suggested tie-up with "The Housekeeper's Daughter" will be issued shortly by the American Gas Association.

Gild of Ancient Supplers Honors A. G. A. Laboratories' Head

R. M. Conner

AT one of the general sessions of the American Gas Association convention to be held at the Hotel Pennsylvania, New York City, October 9-12, the Gild of Ancient Supplers will present its first honorary award to Raymond M. Conner, director of the American Gas Association Testing Laboratories.

The Awards Committee of the Gild states: "The first object of the Gild is promotion of the use of gas. We feel that since the use of gas can be promoted only through gas-burning appliances, it is fitting to commend Mr. Conner publicly for his outstanding work in directing the Laboratories, with the resulting confidence in appliances bearing the A. G. A. Blue Star Seal of Approval, and in the research and improvement of appliances from year to year so that gas may be suitably presented to the public through efficient and safe appliances."

The Gild Award is a bronze statuette or bookend showing the well-known "Gas House Terrier," a character immortalized in Walton Clark's poem, now a classic in the industry. The award was modeled especially for the Gild by a graduate student at the Tyler School of Fine Arts, Temple University. The committee further announces that "the award is not necessarily an annual one, but members of the Gild are deeply interested in the success of the gas industry and they believe that conspicuous service to the industry should be recognized and commended whenever the occasion arises."

Full name of the organization is the Gild of Ancient Supplers of Gas Appliances, Skills, Gins, Accessories and Substances, the initial letters forming GASGASGAS. Membership is limited to men of at least 10 years' service to the industry, and all Supplers are executives and representatives of business who make or distribute appliances, equipment, supplies or services to gas companies.

Bronze statuette of the "Gas House Terrier," which is the Gild award

The Gild will hold its third annual Feast in the Gildhall at the Hotel Pennsylvania on Tuesday evening, October 10. Invitations to Burghers (non-Supplers and gas utility men) have been issued. The Feast is limited to members and invited guests, and is strictly a "Dutch Treat" affair. The Gild surrounds its annual dinner with considerable secrecy, but it is known that the guest speaker will be Billy B. Van, known nationally as an inspiring and entertaining speaker. Entertainment will be provided by The Ben Yost Singers, one of the finest male choruses in the country.

Commissioners Elect Harry Bacharach

HARRY BACHARACH, president of the Board of Utility Commissioners of New Jersey, was elected president of the National Association of Railroad and Utilities Commissioners at its convention in Seattle, Wash. Miami, Fla., was named the 1940 convention city. James W. Wolfe of the South Carolina Public Service Commission was elected first vice-president and Ray C. Wakefield, president of the California Railroad Commission, was named second vice-president.

Personal AND OTHERWISE

Southern California Elects Wade, Macbeth and Day Retire

F. S. Wade

RETIREMENT of the president and the chairman of the board, and election of a new president were announced August 29 by the Southern California Gas Company. The two executives who retired are Addison B. Day, board chairman, and Alexander B. Macbeth, president and general manager, both of whom left active service on September 1 under the company's long-established retirement plan. Both will continue as directors.

F. S. Wade, for many years president and general manager of Southern Counties Gas Company, which is affiliated through Pacific Lighting Corporation with the Southern California Gas Company, will succeed Mr. Macbeth. He will retain his connection with the Southern Counties Gas Company as president, but is turning over to A. F. Bridge, vice-president, the position of general manager.

A. B. Macbeth

The fact that Mr. Wade will act as president and general manager of the Southern California Gas Company and president of the Southern Counties Gas Company, it is pointed out, does not mean that any merger of the two systems is contemplated. Both companies will continue to operate as entirely separate organizations.

Of the two men who are retiring from active duty, Mr. Day has the longer local utility record, and in point of service is the company's oldest employee. He began his business career with the old Los Angeles Gas Company in 1895, when there were only about 4500 gas customers in the company's system. He rose through various positions to that of president and general manager in 1928, and became chairman of the board upon the merger of the Los Angeles Gas Company with the Southern California Gas Company in 1937. He has also been an officer of the Community Welfare Federation, and of the Southern California Symphony Association.

Addison B. Day

Mr. Day has served as president of the Pacific Coast Gas Association, director of the American Gas Association, and is a director of the Union Bank and Trust Company and of Pacific Indemnity Company.

Macbeth Past A. G. A. President

Mr. Macbeth has been identified with the Southern California Gas Company since 1914, when he went to Los Angeles to become its vice-president and general manager. He has been engaged in the gas business since 1898, and before coming to California was associated with the United Gas Improvement Company, the Atlanta Gas Company, and later was general manager of the Kansas City Natural Gas Company of Kansas City, Missouri.

In 1927 he was elected president of the Southern California Gas Company. Under his management the company has grown from a small local gas company to one of the country's largest organizations, distributing natural gas to nearly 700,000 customers in 156 southern California communities. He has taken an active part in affairs of the gas industry, having served as president of the American Gas Association, Natural Gas Association of America, and California Oil and Gas Association, and as vice-president and director of the American Petroleum Institute.

Outside of the utility field, he is a director of the Union Oil Company of California, Union Bank and Trust Company, and All Year Club of Southern California. He is first vice-president and director of the Automobile Club of Southern California, and a vice-president and director of the Navy League of the United States.

Mr. Wade has been identified with the gas business in this area since 1905, when he went to work for the Los Angeles Gas Company as chemist. He was active in the development of the then new oil-gas process. He joined the Southern Counties Gas Company as superintendent in charge of operations in 1912, and became president and general manager in 1928.

He is also a director of the State Mutual Building and Loan Association, the Universal Consolidated Oil Company, Santa Maria Gas Company, and Lomita Gasoline Company.

New A. G. A. Director

John W. Batten

JOHN W. BATTEN, Detroit, vice-president and general manager of the Michigan Consolidated Gas Co., has been elected a director of the American Gas Association. He replaces William G. Woolfolk, former president of the Michigan Consolidated Gas Company, who recently was named president of the United Light & Power Company.

Mr. Batten is a graduate of the University of Toronto, and has been in the employ of the Detroit City Gas Co., now the Michigan Consolidated Gas Co., for the past 33 years. He has been a director of the company since 1923 and a vice-president since 1931. For many years he has been an active member of the American Gas Association, and has been president of the Michigan Gas Association.

R. J. Canniff Joins Servel

R. J. Canniff

ROBERT J. CANNIFF, prominent as an executive in the gas appliance field for the past 18 years, has joined Servel, Inc., with the title of sales promotion manager–gas, it is announced by H. S. Boyle, sales promotion manager of the company. Mr. Canniff's headquarters will be in Evansville, Ind., where he will assist Mr. Boyle in carrying on the company's promotional activities in the urban field where the Servel Electrolux gas refrigerator is marketed.

Mr. Canniff went to Servel from the Ruud Manufacturing Co., of Pittsburgh, makers of gas water heaters.

Depicting 4700 Miles of Pipe Line Network

Courtesy "Blue Blaze News"

An illuminated Neon line running from Dallas to New York thence to a point in Western Europe, representing a distance of 4,700 miles which make up the Lone Star Gas System's network of main lines and feeder lines in the field, will be set on this world replica, as one of the features of the Lone Star System exhibit at the State Fair of Texas in Dallas, October 7-22. Gillis Jones, advertising department display artist, left and Marion Moon, company carpenter at Petrolia station, are shown at work on the replica. The exhibit also will include a number of transparent lighted photographs, tracing Lone Star service from the gas well to the customer's appliances, and a showing of modern and up-to-date gas appliances for cooking, house heating, water heating and refrigeration

Home Service Expert Writes Cookbook

BASED on her 16 years' experience in teaching, demonstrating and studying the preparation of food, the last 14 as home service director of the Milwaukee Gas Light Company, Ella Liner Lambert has presented a cookbook to American women entitled "The Discriminating Hostess."

The book contains 99 menus for every occasion—wedding breakfasts, brunches, special luncheons, dinners for the hurried hostess, time-releasing oven dinners, fish dinners, teas, cocktail parties, buffet suppers and evening refreshments. There are 88 distinctive desserts for those dessert-and-coffee occasions now in vogue. Eight hundred and forty tested recipes are included—many prize-winning ones. The methods used in the recipes are in accordance with the latest accepted methods of scientific cookery.

In her foreword, Mrs. Lambert says: "This book will be valuable to every homemaker who wishes to serve her family only delicious foods cooked in the ways that best preserve their nutrients and enhance their flavors. The inexperienced bride will find it exactly suited to her needs. If the simple, explicit directions are followed accurately, even her first attempt in cooking will be an assured success. The experienced homemaker who may be tired of the same old standbys will find new zest in these pages."

Even The Princess Cooks with Gas

THAT most important young person, Princess Elizabeth of England, is learning to cook and, fitting enough, with fuel worthy of Her Royal Highness—Gas.

According to an article by Arthur Nettleton in *Modern Living*, an English periodical, the Queen long ago decided that the education of her children should include tuition in domestic science. "There's nothing to be ashamed of in a Princess doing housework and cookery," Her Majesty declared, and the outcome was that the head chef at Buckingham Palace was summoned. Now Her Royal Highness visits the palace kitchens at a regular hour each week, so that she may learn the intricacies of cookery.

There are few lessons which the Princess is more thoroughly enjoying, it is reported, for the royal kitchens are admirably fitted for tuition in modern methods of preparing meals. Much of the work is done with the latest gas appliances.

Several ovens, ranging from comparatively small ones to huge examples, are heated by gas, and are heat-controlled. Thus, with the actual cooking turned into a science and made trouble-free, the young royal pupil is able to give the maximum attention to the recipes and other preparatory operations.

At first, Princess Elizabeth tackled only simple recipes—such as scones done in the real Scottish way. More recently she has progressed to more advanced cookery, and some of her efforts have proved so successful that they have been sent as gifts to charitable institutions. For instance, cakes have been sent to children's treats in distressed areas, these gifts bearing the statement, "This cake was made by Princess Elizabeth."

The Princess's cookery and baking efforts now sometimes appear on the royal tables, too. "What's the use of making them, if they can't be eaten?" she asked. So examples of her cookery are seen on the table at small parties attended by her friends.

Indianapolis Utility Reports Progress

SUBSTANTIAL progress in the improvement of gas service in Indianapolis, Indiana, was noted on September 9, the fourth anniversary of the management of the Citizens Gas and Coke Utility. Special credit for this progress was given to Thomas L. Kempk, general manager of the utility, in the September number of the company's publication, *The Gas Flame*.

Among the accomplishments of the last four years, cited in the publication, are improvements in plant equipment, lower rates, and steadily increasing sales and number of customers served. Customers jumped from 77,364 in 1935 to 87,602 in 1939, an increase of 10,238 meters or more than 13 per cent.

Average daily gas consumption from January 1, 1935, to September 8, 1935, was 8,121,000 cubic feet. Average daily gas consumption from January 1, 1939, to July 31, 1939, was 10,623,000 cubic feet, an increase of over two million cubic feet a day or 30.8 per cent.

A. G. A. Directors Meet in New York

The Association's Executive Board photographed at a meeting in New York City, September 12. Seated left to right, are: Vice-President T. J. Strickler, T. R. Weymouth, George S. Hawley, C. E. Paige, Alexander Forward, President Conrad N. Lauer, Vice-President Walter C. Beckjord, George F. Mitchell, N. T. Sellman, Marcy L. Sperry, L. B. Eichengreen, Davis M. DeBard, F. M. Goodwin, D. W. Harris, Merrill N. Davis. Standing—Randall J. LeBoeuf, K. R. Boyes, Otto Snyder, Treasurer E. R. Acker, H. A. Ehrmann, C. A. Tattersall, Frank H. Trembly, Jr.

AFFILIATED ASSOCIATION *Activities*

Pacific Coast Gas Association Holds Annual Convention

H. L. Farrar

THE forty-sixth annual convention of the Pacific Coast Gas Association was held in San Francisco, September 6 to 9. It proved to be the second largest Convention in the history of the Pacific Coast, there being a registered attendance of 562.

Under the leadership of H. L. Farrar, president of the Association, a dramatic program was developed, tying in with the Association's theme for the year "Gas on Parade." The delegates were welcomed to San Francisco by P. M. Downing, vice-president and general manager, Pacific Gas and Electric Company.

Prominent general session speakers included R. E. Fisher, vice-president in charge of sales, Pacific Gas and Electric Company; E. W. Bowness, vice-president, Canadian Western Natural Gas Light, Heat and Power Company, Calgary, Alberta; William Goodman, consulting engineer, Trane Company; F. M. Banks, vice-president in charge of sales and customers department, Southern California Gas Company; Carroll Miller, of Servel, Inc.; Carl Sorby, sales promotion manager, Geo. D. Roper Corporation; and R. S. Agee, sales promotion manager, Association of Gas Appliance and Equipment Manufacturers.

Over 600 people attended the banquet and dance which closed the Convention.

Holloway New President

The Association elected A. E. Holloway, vice-president, San Diego Consolidated Gas and Electric Company, as its 1940 president. Elected as vice-president was R. A. Hornby, vice-president, Pacific Lighting Corporation; and as treasurer, D. G. Martin, general auditor, Pacific Gas and Electric Company.

New directors elected were as follows: F. M. Banks, Southern California Gas Company; R. S. Fuller, Pacific Gas and Electric Company; M. A. Pooler, Tucson Gas, Electric Light and Power Company; C. H. Potter, Southern Counties Gas Company.

During the Convention Mr. Holloway announced the appointment of H. J. Smith, Pacific Gas and Electric Company, as chairman of the Technical Section; A. F. Rice, Southern California Gas Company, as chairman of the Sales and Advertising Section; Charles Grunsky, Coast Counties Gas and Electric Company, as chairman of the Accounting Section; Harrison Musgrave, of Southern Counties Gas Company, as chairman of the Educational Committee; J. S. Spaulding, Southern California Gas Company, as chairman of the Cooperative Advertising Committee; and Mrs. Prudence Hury, Southern Counties Gas Company, as chairman of the Women's Committee.

The Manufacturers' Section reelected R. G. Logue, of the Ward Heater Company, and W. R. Smith, of Continental Water Heater Company, as chairman and vice-chairman, respectively. Division officers elected were as follows:

Range Division—R. J. Merritt, Chairman; Ed. Hinchey, Vice-Chairman.
Furnace Division—C. O. Menig, Chairman; R. E. Fraser, Vice-Chairman.
Direct Heating Equipment Division—E. L. Payne, Chairman; Roy Ohnimus, Vice-Chairman.
Water Heater Division—B. A. Hinkley, Chairman; W. G. Carter, Vice-Chairman.
Accessories Division—Hal Singleton, Chairman; A. W. Ray, Vice-Chairman.

Pollard Wins Day Award

The Board of Directors voted unanimously to award the Addison B. Day Medal of Honor to James F. Pollard, president of the Seattle Gas Company. This award, the highest honor which Pacific Coast Gas Association can confer on its members, was given to Mr. Pollard for the prominent part he played in the organization of a National Advertising Program and for his work in the unification of the gas industry, which has resulted in the affiliation of the American and Pacific Coast Gas Associations. The medal was presented to Mr. Pollard by President Farrar at the banquet.

The Association's Awards Committee voted gold medals to B. M. Laulhere and C. F. Briscoe, both of the Southern California Gas Company, for their paper entitled "Partial Dehydration of High Pressure Natural Gas." In addition to the gold medals a number of "honorable mentions" were made. The Association's Basford Trophy, going to the Section judged to have presented the best and most complete program, was conferred on the Technical Section, of which H. G. Laub was chairman.

An attractive young lady shows delegates to the P.C.G.A. convention how the gas-operated radio works. It was loaned to the convention by Bryant Heater Company

Empire State Gas and Electric Association

E. P. Prezzano

THE Westchester Country Club at Rye, New York, will be the scene of the thirty-fourth annual convention of the Empire State Gas & Electric Association on October 19 and 20. Clarence L. Law, vice-president of the Consolidated Edison Company of N. Y. Inc., general chairman of the convention, announces a most interesting program of business and entertainment.

Many important speakers have been scheduled to appear during the two morning business sessions. Among those to be heard will be Edward P. Prezzano, president of the Westchester Lighting Company, who will speak as the association's president; Conrad N. Lauer, president, American Gas Association; W. C. Kellogg, president, Edison Electric Institute; Dr. W. I. Myers, Cornell University; Davis M.

DeBard, vice-president, Stone & Webster Service Corp.; Herbert C. Davidson, vice-president, Consolidated Edison Company of N. Y.; Hon. Milo R. Maltbie, chairman, New York Public Service Commission; Hall Henry, assistant to the president, New England Gas and Electric Association.

Timely and important matters to be discussed include Sales Promotion Problems, Increasing the Gas Net Revenue, Utility Regulatory Problems, New Developments in Accounting Regulations, The Outlook for New York Agriculture and Rural Electrification and Industrial Relation, with important messages from the presidents of the national utility associations.

Afternoons will be devoted to golf tournaments, auto trips and bridge for the ladies. On one of the evenings, a dinner and guided tour at the New York World's Fair is being planned.

Illinois Public Utilities Association

THE general meeting of the Illinois Public Utilities Association for the year 1939 will take place October 5 and 6, at Springfield, Illinois. It will be held in the Knights of Columbus Building.

Speakers of national importance in their respective lines are on the program for the two days, as well as many prominent officials of the electric and gas companies of the state who comprise the membership of the association.

The meeting is being developed under the supervision of E. F. Kelly, vice-president of the Central Illinois Public Service Company, Springfield, Illinois, who serves as president of the association.

New Jersey Plans Regional Meetings

UNDER the direction of Frank H. Darlington, Peoples Gas Company, Glassboro, chairman of the Regional Meetings Committee, plans are being made for a series of five meetings to be held during the latter part of October and early November.

These meetings are held in the evening and are located in different sections of the State in order to make them available for the entire membership. Tentative locations are Newark, Hackensack, Allenhurst, Camden and Ocean City. The Hackensack meeting will be held Friday, October 27, and the Ocean City meeting will be held Thursday, November 2. Tentative dates for the other meetings are as follows:—Newark, October 24; Camden, November 1 and Allenhurst, November 9.

A. G. A. Man To Speak

The main speaker at these meetings will be Harry W. Smith, Jr., director, industrial publicity of the American Gas Association, and his subject will be "Gas in the World of Tomorrow." Another feature of this year's meetings will be a Quiz Program. All questions used will pertain to the gas industry in New Jersey. Participants will be chosen and cash awards given to all participants.

Each meeting is in charge of a local committee and this committee arranges for the rest of the program which consists of entertainment and refreshments. These local committees are under the direction of the following chairmen:

Newark—L. R. Quad, Public Service Elec. & Gas Co.

Hackensack—R. I. Wilson, Public Service Elec. & Gas Co.

Camden, C. R. Jenter, Public Service Elec. & Gas Co.

Ocean City—J. L. Wood, Jersey Central Power & Light Co.

Allenhurst—Edlow Bance, Jersey Central Power & Light Co.

George B. Webber, president of the association, will speak briefly at these meetings.

SPICE

Young Bride—"I guess I have everything I need to make a cake."

Grocer—"Don't you want some baking powder?"

Young Bride—"Oh no, I have a gas stove!"

Gas in History

(As told by *The Daily Burp*, convention publication of the Pacific Coast Gas Association.)

NOW we'll have our first lesson in that dear little subject that gives us our groceries every month. It's *gas*. In our primers we learned that a young Belgian gentleman named John van Helmant (his other names don't count) accidentally discovered how to make artificial gas in 1609. That's all right so far.

John was quite a playboy. He filled bottles and goat bladders with his little plaything, which he lighted and showed off to an admiring constituency. In all the cocktail bars and night clubs of Belgium, wherever John went with his new-found discovery, there were murmured "ohs" and "ahs" of admiration.

Now, here's the payoff as well as the lesson. If only the radio had been operating in those days of 1609, a broadcast would have hit the ether something like this:

"Flash. K Oo la la Belgium, speaking. John van Helmant, noted scientist of Antwerp, has made a remarkable, marvelous as well as stupendous and colossal discovery which he has called Gas. It's something he puts in a bottle and sets afire. You can't drink it. You can't see it. You can't hear it but, oh, boy, it's hot stuff."

A thousand or more years before our boy friend John made his discovery, the Chinese were using natural gas. They had found it in salt wells. Chinese clowns used to fill bottles and bladders—as did our John—and amuse Chinese kids at the circus the same way John amused the boys and gals in Belgium.

Immediately an answering radio broadcast from China would have been heard something like this:

"Flashee-two time flashee. Station O How Far Low. Sam Loy speekee. Phooie, Station Oo la la Belgium. I say Phooie for John Helmant. China boy play gas long, long time. You tell John Helmant go take a jump in the riber. You got some washee?"

CONVENTION CALENDAR

OCTOBER

Oct. 5-6 **Illinois Public Utilities Association**
Springfield, Ill.

6-7 **West Virginia Utilities Association**
White Sulphur Springs, W. Va.

9 **Association of Gas Appliance and Equipment Manufacturers**
Hotel Roosevelt, New York, N. Y.

9 **Gas Industry Day—New York World's Fair**

9-12 **American Gas Association, Annual Convention**
New York, N. Y.

16-20 **National Safety Council**
Atlantic City, N. J.

19-20 **Empire State Gas & Electric Association**
Westchester Country Club, Rye, N. Y.

Wk. 23 **National Metal Congress and Exposition***
Chicago, Ill.

25-26 **American Management Association, Office Management Division,**
Hotel Pennsylvania, New York, N. Y.

26 **Midwest Industrial Gas Sales Council**
Palmer House, Chicago, Ill.

NOVEMBER

Nov. 13-15 **Mid-West Gas School and Conference**
Iowa State College, Ames, Iowa.

13-17 **American Petroleum Institute**
Stevens Hotel, Chicago, Ill.

DECEMBER

Dec. 4-5 **National Industrial Council**
Waldorf Astoria Hotel, New York, N. Y.

* Includes exhibit sponsored by A. G. A. Industrial Gas Section.

Accounting SECTION

H. A. EHRMANN, *Chairman*
F. B. FLAHIVE, *Vice-Chairman*
H. W. HARTMAN, *Secretary*

Proof of Service Billing by Tally Method and Bill Analysis

By GEORGE W. FUCHS

Philadelphia Electric Co., Philadelphia, Pa.

THIS article describes the method used by the Philadelphia Electric Company for the proving of its electric and gas service billing, and also the method of preparing bill analysis reports.

The company serves electricity to approximately 503,000 customers in the city of Philadelphia, and serves gas to 129,000 customers and electricity to 203,000 customers in suburban territory adjacent to Philadelphia. Approximately 65 per cent of the customers in the suburban territory use both types of service. Of the total electric customers given above, 586,000 are residential and 120,000 commercial.

The service billing for all customers is done at a central billing location on National Cash Register Billing Machines, which furnish an Audit Tape (see Exhibit) showing the present meter index, kilowatt hours or hundreds of cubic feet of gas, rate code, and amount of each bill. These machines also contain registers which accumulate the kilowatt hours or hundreds of cubic feet of gas and the revenue. These totals are imprinted at the top of the Audit Tape upon the completion of the billing of each meter reading book.

Combination Bills Rendered

Combination residential gas and electric bills are rendered to customers using both types of service. There are approximately 125,000 bills of this type rendered each month. A combined bill is also rendered to customers using residential electric service and off-peak electric water heating service. There are about 14,000 of this type bills rendered each month.

Residential electric service and all gas services are billed on straight block rates; therefore, the proof of this billing is efficiently and conveniently handled by the tally or tick method. This method not only affords a proof of billing but further furnishes the completely assembled information necessary for a detailed bill analysis report. The latter affords the means of ascertaining the frequency of each quantity of usage for the five gas rates and two residential electric rates involved. If needed, these figures can easily be assembled on a monthly basis or on an annual basis, either calendar or fiscal.

As a part of the normal bill audit operation, an individual tally sheet is prepared for all accounts billed on each residential electric or gas rate in a meter reading book. Approximately 5500 tally sheets are prepared for each month's billing, of which 3500 are electric and 2000 gas. Only 3000 meter reading books are involved, but daily and monthly summary sheets account for 400 electric and 600 gas tally sheets which are included in the above totals. A large number of gas summary tally sheets are necessary because of the greater number of gas rates and the several Company territorial subdivisions in which these gas rates apply.

A sample Gas Sales Analysis sheet, hereinafter referred to as a tally sheet, is shown in the Exhibit. The left hand column of the sheet is imprinted with heavy black numbers in steps of 100 cubic feet of gas from 1 to 8. From 8 to 60, the usage is in steps of 200 cubic feet of gas. Starting with the line 62-70 and continuing to over 2000, the usages falling in this group are recorded individually. The tally sheets have been so arranged because a sampling of gas usages indicated that slightly less than 18 per cent of the gas consumptions were above 6000 cubic feet and only 5 per cent are above 10,000 cubic feet. From this, it was felt that for rate making purposes, in so far as the Philadelphia Electric Company is concerned, if an unusual condition should arise whereby the usage beyond 6000 cubic feet in steps of 200 cubic feet would be required, this information could easily be obtained by reviewing the respective blocks on the analysis sheets containing the recordings of individual contumptions in excess of 6000 cubic feet.

The blocks at the upper right of the tally sheet headed "Irregular Billing" are used to record and verify the amounts of irregular and special billings. These include bills covering irregular periods on which the blocking was prorated. These bills are listed separately, and at the same time the revenue associated with the number of days and cubic feet of gas, must be obtained from a billing chart, independent of the amount of money which may have been billed by the billing machine operator.

It has been the practice of the company to read the last index of all meter statements in even numbers, excepting when reading meters equipped with a constant, or where the use of service falls below the minimum, or when taking final meter statements. This practice reduces the size of tally sheets and billing charts, and the number of consumption figures the billing machine operators and others must memorize in order to associate charges therewith.

The tally sheet shown in the Exhibit has been so designed that it can be used for all gas rates. For the purpose of this article, billing under gas rate G-DJ, "General Service" is being described. All accounts billed under this rate are shown on the Audit Tape coded "G." These items have been tallied in the proper spaces on the tally sheets.

The charges under Rate G-DJ per month are as follows:

$1.00	minimum	covers	the	use	of	the	first			500	cu.ft.
1.00	per	1,000	cu.ft.	for	any	part	of	the	next	4,500	"
.90	"	"	"	"	"	"	"	"	"	45,000	"
.80	"	"	"	"	"	"	"	"	"	150,000	"
.70	"	"	"	"	"	"	"	"	"	300,000	"
.60	"	"	"	"	"	"	"	"	"	500,000	"
.55	"	"	"	"	"	"	"	"	"	2,000,000	"
.50	"	"	"	"	"	"	"	"	"	2,000,000	"
.45	"	"	"	"	the excess over					5,000,000	"

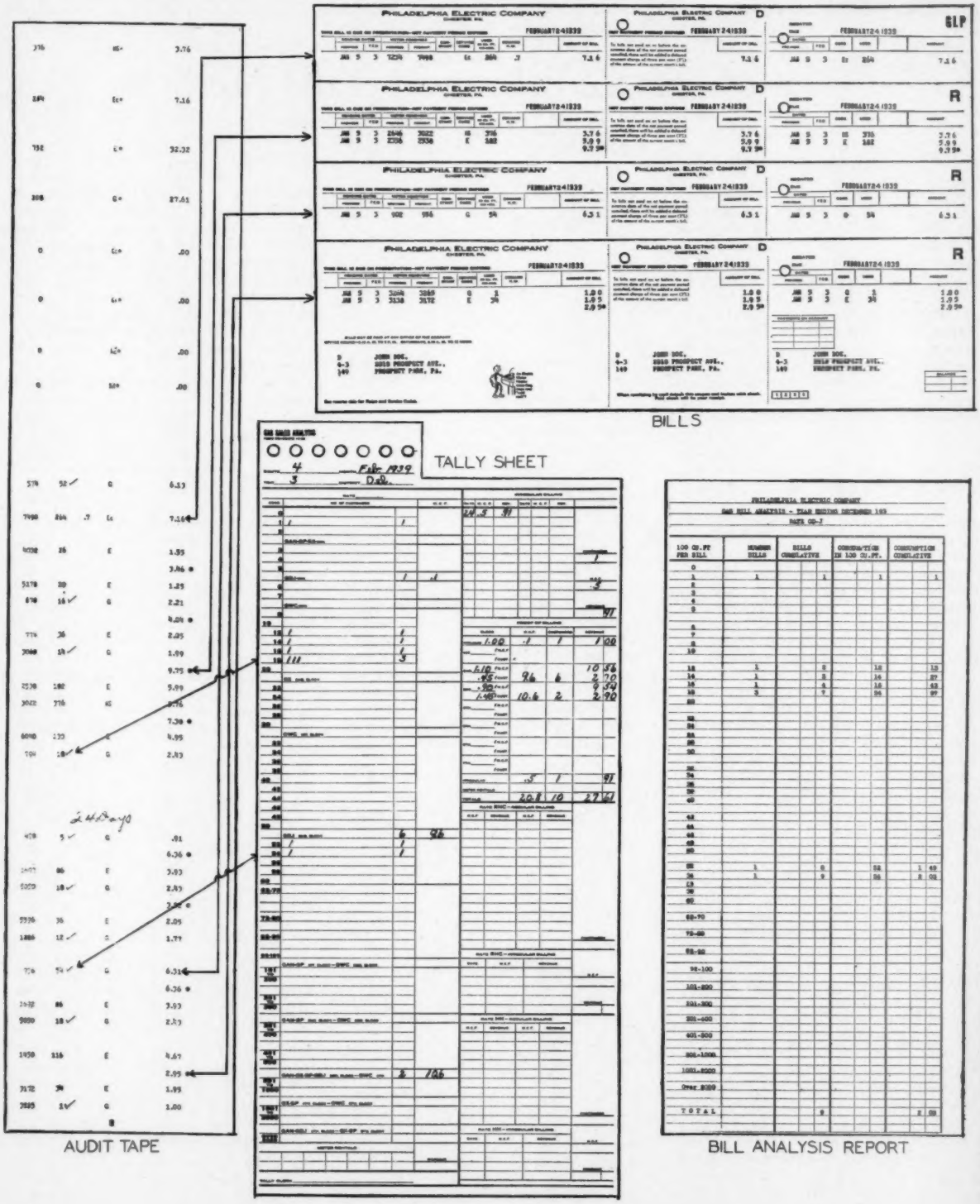
The tally clerk upon receiving a completely billed meter reading book, tallies each quantity of gas usage shown on the Audit Tape by placing a stroke mark in the corresponding usage line on the tally sheet. As each usage is tallied, it is check marked on the Audit Tape. As previously explained, a rate code is imprinted on the Audit Tape for each bill prepared and from this the clerk is guided as to which items appearing on the tape are to be tallied. (Electric accounts are coded "E," electric heat-storage accounts are coded "HS," etc.)

Contribution of General Accounting Committee.

The clerks who handle books covering both gas and electric service use two and occasionally three tally sheets, depending upon the number of rates contained in the book. These are filled in by the clerk simultaneously while proceeding up the Audit Tape.

After all the bills have been tallied and recorded, the clerk proceeds to prove the amount of billing by first summarizing the number of strokes in the various usage spaces on the tally sheet. The total of each line is recorded in the column immediately to the right.

By means of a comptometer, the tally



clerk then multiplies the totals in each of the usage lines by the cubic feet for that line and carries these totals in the comptometer for each block of the rate. This calculation is started with the line for zero cubic feet and is repeated until the total cubic feet associated with the first block of the rate has been summarized. A similar operation is performed for each succeeding block of the rate. The total cubic feet for each block of the rate so obtained are then recorded in the M cu.ft. columns immediately to the right of the bill total column.

The total M cu.ft. and bills by rate blocks are next recorded in the respective columns in the space headed "Proof of Billing" which is on the right side of the tally sheet, immediately below the space used for recording irregular billing.

Money Figures Explained

The money figures in the left column of the Proof of Billing space, headed "Block" are constant. Those appearing opposite M cu.ft. represent the unit price for the M cu.ft. of that step of the rate. The charges of cents per customer appearing below the M cu.ft. cost may not be entirely clear. These are explained as follows: For example, in the third block a total of two bills is shown with a consumption of 10.6 M cu.ft. If these 10.6 M cu.ft. were only multiplied by ninety cents, the price for the third block of the rate, the correct revenue would not be obtained, as a portion of the cubic feet was actually billed at the first and second blocks of the rate which are at a higher unit price. Therefore, in order to arrive at the correct revenue, it is necessary to apply a differential to make up the difference for the price of the first and second blocks.

The differential of $1.45 for the third step of the rate is derived by taking the difference between the price of the first and third blocks, which is $1.10 and multiplying the 0.5 M cu.ft. of the first step by this figure, which gives an amount of fifty-five cents. The same thing is done for the second block by taking the difference between the price of the second and third blocks, which is twenty cents, which is multiplied by 4.5 M cu.ft. of the second step which amounts to ninety cents. The sum of these two amounts gives the differential of $1.45.

By applying the figures in the column headed "Block" to the figures in the adjoining columns headed "M cu.ft." and "Customers," the revenue for each block of the rate is computed. To these totals are added the totals of M cu.ft. and customers and revenue, which have been previously checked, for irregular and special bills. The total of the M cu.ft. and revenue calculated on the tally sheet in this manner must agree with the corresponding totals shown on the Audit Tape.

The analysis sheets are perforated for use on a peg board. This permits the shingling of many sheets in deriving summarized totals. The sheets are also scored, which facilitates the folding of them which is necessary in the shingling operation for the derivation of totals for all steps of usage.

The foregoing method outlined for the tallying of the gas rate (G-DJ) is also followed in the same general manner for the tallying of the other gas rates and the residential electric rates.

All commercial electric customers are billed on a demand basis. The proof of computation of commercial bills is accomplished by making a double calculation of each bill. The proof of billing is made through a comparison of the kilowatt-hour and revenue totals on the Audit Tape with that of a run of the bills on an adding machine.

To facilitate the preparation of a bill analysis report for commercial rates, a small ticket obtained by utilizing scrap paper about 3¾" by 2" is inserted in the billing machine along with the customer's bill, and the demand and kilowatt hours are simultaneously imprinted on the ticket during the billing process. These tickets are then stored until a bill analysis is considered desirable or necessary, at which time they are first sorted by demands, after which they are sorted in kilowatt-hour steps for each demand and summarized.

Choosing Representative Month

One study made by this company shows that it may only be necessary to prepare such tickets for billing during the month of October, as this month closely approaches the average month developed from previous annual figures. A later study showed that in years where unusual fluctuations have taken place, the average of the months of February and September can be used as a representative month. The latter plan was adopted and put into effect by this company in February, 1939, so that tickets are now only prepared during these two months.

The Exhibit has been arranged to show the manner in which the various items relate to each other. As explained in this article, the Audit Tape is prepared simultaneously with the preparation of the bills. It is to be noted that all the bills for a single rate are not prepared at one time, but as shown on the Audit Tape by the rate codes, bills regardless of rate classification are prepared in the same order as they appear in the meter binder.

The gas items appearing on the Audit Tape are shown as they have been tallied on the tally sheet. For the purpose of this article, only a few bills are indicated. In actual practice, however, a great many more items are tallied for each meter reading book.

In order to show a complete bill analysis operation, a "Bill Analysis Sheet" has been included in the Exhibit. This sheet was prepared from the items appearing on the tally sheet exclusive of irregular bills, and therefore only shows information for a few quantities of usage. A completed report, however, gives complete information on all quantities of usage, and is invaluable for rate making purposes and in other types of studies made by the Rate, Sales, and General Accounting Departments.

The tally plan replaced a plan of bill proving which was based on accumulating consumptions by rate steps in billing machine totalizers and extending each step at its proper unit price. The total revenue so calculated had to compare exactly with the total revenue billed and accumulated in the billing machine totalizers. Revenue reports compiled from this data were of little or no value to the Rate and Sales Departments and it was, therefore, necessary periodically to prepare bill analysis reports as special jobs and at considerable expense.

The present procedure not only adequately takes care of the bill proving operation, but also furnishes all of the desired information for bill analysis reports monthly and annually, at a lower cost than was possible under the former method when bill analysis reports were only prepared about once in three or five years.

The monthly bill analysis reports are available about the tenth of each month and are used extensively by the Sales Department to analyze effects of various factors and sales campaigns on output. In addition these reports permit the compilation of a twelve months' bill analysis report at any time. The work of the Rate Department is also greatly facilitated in that the effect of rate reductions can be accurately determined and the experience so gained can be used to govern the type of future rate reductions.

NARUC Reports

THE National Association of Railroad and Utilities Commissioners announces that the following committee reports, presented at their recent annual convention in Seattle, will not be included in their proceedings, but will be available in pamphlet form from the office of the Secretary, Clyde S. Bailey, 7411 New Post Office Building, Washington, D. C., at a small cost:

1. The Report of the Committee on Statistics and Accounts of Public Utility Companies—containing, among others, the following documents:
   Rules for the Preservation of Records of Gas Utilities.
   Bulletins G-1 and G-2, Interpretations of the Uniform System of Accounts for Gas Utilities.
2. Report of the Committee on Public Utility Rates.
3. Special Committee on Depreciation.
4. Special Committee on Public Utility Finance.

In Plaza Three at the New York World's Fair a fountain 30 feet high is topped by a gas flame four feet in height—an innovation in fountain displays. Along the avenue approaching this plaza 30 English flambeaux, or flaming torches of gas on lamp posts, provide a highly decorative effect.

Home Service Conference and Training Course Attracts Delegates from 18 States

Gladys B. Price

THE Home Service Conference and Training Course held in Los Angeles at the Chapman Park Hotel, August 22 to 26, was well attended by a group consisting of home service directors from eighteen states, sales managers and educators from different Pacific Coast States. A program varied in interest and content developed many new phases of home service operation.

Gladys B. Price, of the Southern California Gas Company, chairman of the Home Service Committee, presided most efficiently, and outlined the reason for this third annual conference. These conferences were set up three years ago under the sponsorship of the Home Service Committee of the American Gas Association at the request of educators who maintained that a course of this character would give much assistance in picturing just what home service work involved.

By JESSIE MCQUEEN
American Gas Association

"What the Utility Expects of Home Service" and "New Trends in Home Service," the opening conference topics, gave a definite picture of the responsibility placed on home service in the sales department. Norman R. McKee, vice-president, Southern Counties Gas Company, Los Angeles, outlined the chief sales value of the work in giving assistance to dealers, in maintaining contact with appliance research developments and in establishing widely varied contacts with all community interests.

Home Service Trends

F. M. Banks, vice-president, Southern California Gas Company, emphasized three trends: greater consideration by home service of work with general employee groups; surveys of customer habits; and fast-breaking developments in appliance research and performance.

"Home Service Operation," featuring the general organization necessary in setting up a well-rounded and effective home service department, was the subject Miss Price presented as another phase of this opening session.

The conference being primarily a training course, one session was devoted to three subjects on the type of training needed. Eleanor Spike, of Oregon State College, discussed the subject "Home Management Training Prepares for Home Service." She pointed out that if modern equipment gives home makers more leisure time, home service workers should give some attention to the problem of how this time could best be used.

A paper by Elizabeth Sweeney, of Syracuse University, outlined a college home service training course. A former home service director and a past Home Service Committee Chairman, Miss Sweeney has incorporated that training into her teaching course. Jessie McQueen, of the American Gas Association, presented the story of the Home Service Committee and its plan of work as a basis for the growth of home service. She also outlined the qualifications and training needed in the preparation for home service work.

Specific home service activities were discussed by directors from a number of different companies. The important subject of

The banquet during the Home Service Conference and Training Course—another memorable event in the highly successful program

Home Calls was explained fully by Colleen Fowler of the Kansas City Gas Company. She was assisted in a skit of a typical home call by Martha Jean Singleton of the same company. "Home Service Abroad," in reality the work of home service in Honolulu, was described in a very interesting way by Pauline Edwards of the Honolulu Gas Company.

"Drama in Demonstration" brought the demonstration idea to the registrants in a most interesting presentation. The group was taken to the Hollywood Auditorium of the Southern California Gas Company with one demonstration given by Florence Windecker, Margaret Martin and Harry Booth, of the Southern California Gas Company, and a second demonstration presented by Marguerite Scroggie and Margaret Lackland, of the Southern Counties Gas Company.

Club Women's luncheons were described by Vera Bardwell, of the Southern California Gas Company. In another session the conference was moved to the Payne Furnace Auditorium, where a club luncheon was served to the group and a luncheon demonstration presented by Lucile Martens of the Southern Counties Gas Company.

Group Conferences

One interesting session was devoted to group conferences covering problems in home service departments of various sizes, ranging from a one-girl department to a large district system. These group conferences, assigned for one morning, were continued at convenient times throughout the meetings. On Friday morning Mary Alice Crosson, of the West Texas Gas Company, Lubbock, Texas, started the discussion in the one-girl department group. Ruth Sheldon, of the Washington Gas Light Company, Washington, D. C., explained the one-city system and Catherine Cahalan, of the Public Service Electric & Gas Company, Elizabeth, New Jersey, developed the discussion of the district system.

Dealer cooperation was explained by Cleo Filsinger, of the Pacific Gas & Electric Company, San Francisco, California. In her paper "Educating for Greater Consumption," Evelyn Bluett, co-ordinator, Committee for Consumer Education, Adult Division, National Education Association, Los Angeles, gave a very enlightening discussion of the philosophy of the consumer movement.

Leading off the equipment discussion, A. F. Rice, chairman, Domestic Sales Committee, Pacific Coast Gas Association, spoke on "Gas Does the Four Big Jobs." Mr. Rice pictured gas as a very dramatic, widely used and major fuel in American business and living.

Certified Performance range promotion received prominent attention at the conference. It was introduced by Grace Meyer of Southern California Gas Company, who used comparative baked products to illustrate effective use of the range. R. S. Agee, sales promotion manager, Association of Gas Appliance and Equipment Manufacturers, gave an inspiring talk on the benefits of cooking with the CP Range. Three demonstrations given by the home service people outlined ways in which the CP Range could be presented most effectively to the public.

"What the Customer Wants To Know" was the title of an interesting gas refrigerator story presented at the conference by Jane Tiffany Wagner, of Servel, Inc., New York. This was followed by a refrigerator symposium, conducted by C. A. Miller of Servel, Inc., Oakland.

Under the title "Getting into Hot Water," R. V. Davis, of the Southern California Gas Company, outlined facts about water heating which could be used by home service women in their contact with customers.

Gas house heating developments were described during a trip through the Payne Furnace Manufacturing plant in Beverly Hills. This was done in connection with the luncheon demonstration served in the Payne company's auditorium which had been set up for club women's use.

The story of the A. G. A. Testing Laboratories and the Blue Star seal of approval was presented by F. O. Suffron, of the Pacific Coast Branch in Los Angeles.

A new development of the Home Service Conference this year was the opportunity

(Continued on next page)

Commercial Section Closes Year of Numerous Sales Activities

By F. X. METTENET

Chairman, Commercial Section

F. X. Mettenet

THE Commercial Section is closing a very successful year of numerour activities to stimulate the sale of domestic gas appliances and residential gas service.

Since its inauguration on August 1, 1938, the Certified Performance Range Program has gotten into full swing. Plans for next year's campaign are being discussed among the representatives of the gas utilities and manufacturers sponsoring this program through the Domestic Range Committee.

An enlarged field contact program, better coordination with the National Advertising Campaign, and four special campaigns for gas utilities and dealers in CP Gas Ranges are among the items being considered.

The Domestic Range Committee is sponsoring a radio spot announcement program on CP Gas Ranges during the 13 weeks beginning October 2. Widespread participation of member gas companies has been indicated in this program so as to make it national in scope.

The A. G. A. All-Gas Home Builders' Competition closed on July 31 with 2,100 builders registered who had built or modernized all-gas homes during the previous two years. The Home Service Committee held a most successful Home Service Conference and Training Course in Los Angeles during August which was attended by Home Service Directors, educational people and others from eighteen states. Both of these activities are reported upon in detail in other parts of this issue.

Very valuable reports of the Appliance Financing, Appliance Servicing, Home Service, House Heating and Air Conditioning, and other committees are complete and will be available prior to the convention.

The Housing and Realty Projects Committee has done much work in expediting the use of gas appliances and gas service in housing projects both publicly and privately owned. The Refrigeration Committee concluded its most successful national sales contest on July 31 with the largest participation on record by gas companies and their sales personnel.

Regional Sales Conferences were held in the Middle-West district and in the Eastern Natural Gas area surrounding Pittsburgh during the month of February, and in the Southern-Southwestern district during the month of March. A similar conference covering the New York-New Jersey area was held in New York City in June.

The scope of the sales promotional work undertaken cooperatively by representatives of the Association of Gas Appliance and Equipment Manufacturers and gas utilities working under the sponsorship of the Commercial Section's Domestic Range, Water Heating and Refrigeration Committees has continued to grow in importance.

During the course of the year a special committee undertook the job of preparing two new sales training courses, one, "Selling Residential Gas Today" for gas company and dealer salesmen, and the other, a course in sales cooperation for general utility employees in contact with the public. These courses have been appreciated by companies which have utilized them and should continue to be a means of stimulating sales for a considerable period.

A special committee of the Section has been engaged in planning and arranging for a unified exhibit of gas heating and air conditioning equipment at the International Heating and Ventilating Exposition to be held in Cleveland, Ohio, in January, 1940.

HOME SERVICE CONFERENCE

(Continued from preceding page)

to visit different home service auditoriums to give those registered pictures of how attractive kitchens have been set up for demonstration purposes. In addition to the Hollywood and Payne auditoriums, a third auditorium visited was that of the Southern Counties Gas Company at Santa Monica, where Katherine Rathbone, as home service director in that office, greeted the group and where refreshments were served.

"Fitting into the Sales Department," by F. M. Rosenkrans, new business manager, The Gas Service Company, Kansas City, summed up the closing session. Mr. Rosenkrans outlined the organization of the department under his supervision, the reasons for its growth and its place in company management. His thought-provoking address was reproduced in part in the September issue of the A. G. A. MONTHLY.

Entertainment features of the four-day conference included a "Get-Acquainted" dinner the first evening presented through the courtesy of the Association of Gas Appliance & Equipment Manufacturers. Host was W. R. Smith, of the Continental Water Heater Company in Los Angeles, who as a member of the board of directors of the Association greeted the group and presented Al Rice of the Southern California Gas Company as master of ceremonies.

On Thursday evening of the conference, the Western range companies and the Western representatives of Eastern range companies entertained the conference at a Beach Party at the Deauville Club at Santa Monica.

Flowery Compliments

Recess refreshments during several of the sessions were through the courtesy of Servel, Inc. Flowery bouquets were presented to registrants at the opening session with the compliments of The Bryant Heater Company of Cleveland.

Conference note books were presented by the Advertising Committee of the American Gas Association and George Rector Cook Books were sent by the Commercial Section of the Association.

Throughout the entire conference, continual appreciation was expressed for the genuine California hospitality provided by the entire home service staffs of the Southern California Gas Company and of the Southern Counties Gas Company. A rising vote of thanks was extended to Miss Price and her colleagues, and a particular expression of appreciation to her company and its personnel who gave such wholehearted support in making the conference truly worthwhile and enjoyable.

Appliance Dealers Pack Meeting on CP Gas Range Program

Part of the throng, made up of Southern California gas appliance dealers and utility company salesmen, that swarmed into the famous Riverside Breakfast Club, Los Angeles, on the night of August 29 to inaugurate the local Fall CP gas range campaign

PERHAPS the largest dealer meeting ever held in connection with modern gas equipment, was that at the Riverside Breakfast Club, Los Angeles, Calif., August 29, to inaugurate the Fall CP gas range campaign. Sponsored jointly by the Southern California Gas Co. and the Southern Counties Gas Co., the meeting was attended by 2300 enthusiastic dealers and salesmen. With a building capacity of only 1500, it was necessary to install four loudspeakers outside of the building to accommodate the overflow attendance.

The meeting was opened by A. F. Rice, manager of market development, Southern California Gas Company, and CP regional manager for the West coast area. After presenting plans for a mammoth Fall CP range campaign, Mr. Rice introduced Mr. Gillfoil, president of California Hardware Dealers Association; Roy Johnston, president of California Master Plumbers Association, and Mr. Pender, representative of California Furniture Dealers Association. All praised the utilities' program and dealer cooperative plan for the promotion of CP ranges.

R. S. Agee, sales promotion manager, Association of Gas Appliance and Equipment Manufacturers, then spoke on the CP gas range background and demonstrated the food savings effected by this modern cooking equipment.

On the previous day, a meeting of all new business employees of the two Los Angeles utilities was held in a local downtown auditorium.

House Heating Sales Manual Offered

A SALES manual which has been found very helpful to gas company and dealer salesmen in presenting a complete and convincing story on the advantages of gas house heating is being offered to the gas industry by the House Heating and Air Conditioning Committee of the American Gas Association. Entitled, "House Heating Sales Tools and How to Use Them Successfully," the manual has been used with marked success by the Public Service Electric & Gas Company, of Newark, N. J., which is making an outstanding record in the sale of gas for house heating.

Because of the value of the manual in stimulating sales, the committee under the chairmanship of H. G. Schaul, of the Westchester Lighting Co., Mt. Vernon, N. Y., decided to reproduce and distribute it to member companies for their use as a guide in producing similar manuals applicable in their own territories.

The complete manual is being offered at a cost of $2.00 per copy. Included in the manual is a Proposal for Installing Automatic Gas Heating, imprinted reprints of which are available separately at the following prices: sets of 25—$10.00; sets of 50—$15.00; sets of 100—$26.00; sets of 1,000—$200.

Industrial Gas SECTION

F. H. TREMBLY, JR., *Chairman*
F. T. RAINEY, *Vice-Chairman*
E. D. MILENER, *Secretary*

Selling Industrial Gas—and at a Profit

By I. LUNDGAARD

Rochester Gas & Electric Corp., Rochester, N. Y.

WE are living in a technologically progressive age. In every branch of science and in the technical arts the old is discarded or improved and new things are appearing on the horizon—whole new industries are created as by a magic wand. The great magicians of former eras dwindle into insignificance and their tricks seem paltry when compared to the miracles of modern science. The most imaginative dreamers of a few decades ago never foresaw our present day automobiles, our silvery airplanes streaking through the sky, our radios and videos, our giant industries and endless inventions for tremendous production of necessities and conveniences that make our new and higher standard of living.

Compared to most modern industries, the gas industry is ancient. Through its 130 years of existence it has enjoyed steady, wholesome growth. It is today a more vital part of our necessary services than ever before, and I believe that it is within the realm of possibility that someday it will be our universal fuel—that raw fuels will be made to yield their valuable chemical constituents while being converted into refined gas fuel—that the grime, dust and toil of coal fires will no longer mar the beauty and health of our great cities. This is the task ahead of the gas industry and its realization will be one of civilization's great victories.

Industrial Gas Progressive

The industrial gas engineers have made outstanding contributions to progress of the gas industry in the last two decades. No other branch of the industry can point to such revolutionary development. More and more the inherent qualities of gas have been forced into the service of its masters and from a position of "just another fuel" gas has emerged as a source of heat having useful characteristics affecting results over a wide range of industrial processes.

New methods and new instrumentalities have been discovered and invented and special purpose heating machines are fast taking the place of furnaces and ovens that are only places to heat things. Today the industrial gas engineer is called upon to produce specified results with unfailing precision while keeping the cost of production down to a minimum. He must know materials and processes—paints, plastics and porcelain, fibers, metals, heating, ventilation and air conditioning—he must be a chemist and a physicist, and he is called upon to understand factory management and business administration. It is only by interpreting the value of gas in relation to its effect on a chain of other processes that gas can be sold at a profit. The opportunities to sell gas at a profit as a "mere fuel" are too limited to merit the interest of this audience.

Paper presented at A.G.A. Industrial Gas Sales Conference, Hotel Statler, Cleveland, Ohio, March 27 and 28, 1939.

Competitive Fuels

One who looks upon gas as just another fuel will be confronted with dismaying facts. Bituminous coal is priced at from 1 to 2 cents per therm, anthracite and coke 2 to 5 cents, and oil from 1½ to 5 cents per therm. Manufactured gas is sold at rates from 5½ to 20 cents per therm. In other words, as just a fuel, gas costs more than four times as much as bituminous coal and perhaps an average of twice as much as oil.

But let us take heart from the sale of electricity as industrial fuel at prices from three to five times the cost per therm of gas. We may well pay tribute to the courage and skill of the pioneers of electric furnaces who set out to sell and did sell large scale industrial heating at electric rates equivalent to $1.50 per M for manufactured gas. It really sounds fantastic but let us keep well in mind that it has been done and is being done now and that these sales are not based on House of Magic thrills but on performance. Cold logic, not romance makes these sales. If we can approach the achievements of our electric furnace friends we should not need to worry about profit in industrial gas.

Profitable Fields for Gas

In making a survey of industrial fuel applications, I shall exempt natural gas as far as it is being sold at rates substantially below those prevailing for the manufactured product. Profit possibilities are limited by the necessity of making rates that are not higher than what the traffic will bear, not, however, in terms of fuel costs but in terms of cost of producing a finished product. Thus if the fuel efficiency is doubled the rate for gas may also be doubled and still be within specifications as to what the traffic will bear. It is obvious that profit vanishes as the price approaches cost of production and delivery.

Manufacturing Cost Trends Important

At this point we may all do a little serious thinking. Our business is one that requires large capital investment—to get one dollar of gross revenue we must spend on the average four dollars in capital investment. It may take years before any net earning accrues from the acquisition of new loads. Taxes, labor and raw materials have all gone up and will likely continue to do so. The spectre of increasing rates in a highly competitive business is one that can only be viewed with apprehension.

The gas loads we take on today may be lost long before any substantial profit can be made, or we may choose to hold it at rates that yield little or no profit. I am not an alarmist, not even a pessimist, but I do wish to urge the gas industry to redouble its efforts to lower its own cost of production. We have new knowledge and new materials to build with. Industrial gas engineers have led the way in the use of heat-resisting alloys for construction of automatic heat-processing machines. Perhaps some of the knowledge gained there can be made use of in the production of gas.

If the answer is to upgrade coal into by-product coke, let us get 70 tons of saleable coke where we now get 50 tons and make that coke into a dense finished fuel that will command a premium in the market.

If complete gasification is the answer, let us try it, and if we fail let us try it again.

If gas should be made as a by-product of processing oil or should be extracted from the coal that is burned in our mammoth steam plants, let us hasten the day when this is done.

Industrial sales more than any other branch of sales can help to hasten progress. In most cases it will be possible to construct new plants only when *the capacity of existing facilities become inadequate.* Whatever improvement in production processes and reduction in production costs may be made, they are not apt to be of any use until the gas load has grown substantially. Non-residential consumption now accounts for about two-thirds of the total gas send-out and the potential market is very great, which gives us an opportunity to increase greatly the volume of our business.

It is inherent in the gas business that larger volume and increased density and saturation lower cost. It is questionable if we can realize this natural advantage in the face of increasing cost and higher rates, and should the trend of growth ever be reversed then disaster is ahead of us. I am

confident that our business is going onward and upward but let us face our responsibility squarely.

Where Gas Dominates

The size of the load, the degree of control required and the temperature of application are the three main factors that separately or in combination determine the choice of fuel for industrial uses.

Gas is generally the choice where the consumption is small and consideration of convenience and ease of operation outweigh consideration of cost of fuel. In this field gas is easily sold at good profit.

As consumptions increase other fuels enter the competition and to be saleable the rate for gas must be lower. This does not necessarily mean that the profit margin must be reduced.

The second factor, that of controllability, has provided great opportunities for the sale of gas to industry. No competitive fuel possesses the quality of controllability to such a high degree and the great value of this characteristic of gas which is constantly being better understood and more generally utilized has made it possible to sell gas at premium rates in fields that otherwise would be completely barren. Whether the object is to maintain temperatures with extreme uniformity or to provide predetermined cyclic variations, gas does the job. Precision control of combustion for desired furnace atmospheres and indirect heating for application of special furnace atmospheres are matters of routine engineering in present-day practice.

The third main factor, that of temperature, provides in itself no stronghold for gas. That it dominates in the medium range, from 1000° F. to 1800° F., is largely because it is here used for processes requiring controllability such as heat-treating of steels, vitreous enameling, annealing, carburizing, etc.

The position of gas is weak and much development is needed in the upper temperature range—the very range where one should expect to find gas in a leading position. Steel, iron, brass and copper are being melted even in electric furnaces; producer gas and blast furnace gas are used in steel furnaces; coal or producer gas in melting glass (unless natural gas at low rates is available); forging is largely done with oil fires, etc.

I don't believe that these high temperature uses should be looked upon as being out of our field. Gas has certain advantages in connection with heat regeneration or recuperation that may help to give us the answer. Its combustion is clean and can be closely controlled. The heat capacity of the fuel itself is negligible so that regeneration may be limited to the air for combustion and the bulk and cost of construction held low.

When gas is burned at 2300° F. half of its heat is consumed in raising the air for combustion up to the application temperature. Even at 1600° F. one-third of our fuel goes to preparing the air for combustion. By using the waste flue-gases to raise the temperature of the air going to the flame we can save large amounts of gas and increase profit possibilities. Effective solutions of all the problems associated with regenerative operation are needed and I recommend these problems to you for your serious attention. The reward for the mastery of this art is expansion of our market into a field of tremendous magnitude.

In the low temperature field the advantage of gas is often enhanced by more direct application than is possible with other fuels. Higher efficiency of operation and lower cost of construction generally result from direct application of gas heat.

Selling Industrial Gas at a Profit

I have indicated to you the present status of gas in industry and that we have done some things very well and other things not so well.

I believe that the American Gas Association slogan for the home, "Gas for the Four Big Jobs," might well be adapted to industry, only it would have to say "Gas for All Heating Jobs."

High efficiency and low installation cost are outstanding advantages of space heating with gas. As against steam heat from a boiler plant with its labor cost, high fixed charges and inevitable line loss, gas-unit heaters can do an excellent job at rates that will probably be found to be remunerative. If such space heating is installed the factory will have a general gas distribution system so that all sorts of heating load may be readily connected and much of the loss to electric heating—which is so easily attached because the wires are there—will be avoided. There will be no steam distribution system to rob the gas load and when steam must be used, individual boilers may be installed.

While we are designing the factory "all heat" gas distribution system let us give some thought to the use of adequate pressure so that complete air entrainment may be accomplished and the piping cost kept low.

We may have to develop cartridge units, strip-heaters, infra red radiators and many other things to do the "all heat" job but let us get back of the idea of the industrial slogan "Gas for All Heating Jobs."

We already have all-gas restaurants where heating, cooking, water heating, refrigeration and air conditioning are working out very satisfactorily and there we have "Gas for the Five Big Jobs."

(Continued on page 368)

INDUSTRIAL & COMMERCIAL NATIONAL ADVERTISING FOR OCTOBER

The Advertising Committee of the Industrial Gas Section, J. P. Leinroth, chairman, and F. B. Jones, vice-chairman, announces that full-page advertisements will appear in the following trade and business magazines during the month of October.

MAGAZINE	DATE	TOPIC
Metals Industry		
The Iron Age	October 19*	Gas for Heat Treating Metals
Steel	October 16*	Gas for Heat Treating Metals
Metals and Alloys	October	Gas for Heat Treating Metals
Metal Progress	October	Gas for Heat Treating Metals
Food Industry		
Bakers Helper	September 30	Improved Bake Ovens
Bakers Weekly	September 23	Improved Bake Ovens
Food Industries	October	Gas for Heat Processing of Foods
Ceramic Industry		
Ceramic Industry	October	Gas in the Ceramic Industry
Hotels and Restaurants		
Hotel Management	October	Gas for Commercial Cooking
American Restaurant	October	Gas for Commercial Cooking
Chain Store Age (Restaurant and Soda Fountain Edition)	October	Gas for Commercial Cooking
Hospitals and Schools		
Modern Hospital	October	Gas for Commercial Cooking
American School Board Journal	October	Gas for Commercial Cooking
Processing Industries		
Chemical and Metallurgical Engineering	October	Gas for General Industrial Heating
General Manufacturing		
Industrial Heating	October	Gas for Heat Treating Metals
Industrial Power	October	Gas for Heat Treating Metals

* National Metal Show Issues.

Industrial Gas Exhibit Planned for National Metal Show

WITH industrial production on the upswing, with war in the air, and with the nation's factories being equipped for ever-greater outputs, the 1939 National Metal Congress and Exposition, scheduled for the International Amphitheater, Chicago, October 23-27, offers an unusual opportunity for the industrial gas business to display its latest equipment for use by the metal industries.

To help the gas industry capitalize upon this opportunity, the Industiral Gas Section, through its Committee on Displays at National Industrial Expositions (D. W. Chapman, Chairman) will again sponsor a 5,000-square-foot cooperative section at this popular annual national trade show of the metal-working industries. The huge gas section of the metal show will be known as the American Gas Association Combined Industrial Gas Exhibit.

Cooperating with the Section will be the following 11 industrial gas equipment manufacturers: American Gas Furnace Company, Continental Industrial Engineers, Despatch Oven Company, Eclipse Fuel Engineering Company, Chas. A. Hones, Inc., The C. M. Kemp Manufacturing Company, The Paul Maehler Company, The Partlow Corporation, The Selas Company, Sellers Engineering Company and Surface Combustion Corporation.

In all, some 65 to 70 men will man the manufacturer-booths in the joint exhibit.

21 Gas Companies Join Hands

In addition, 21 gas companies within a radius of 200 miles of Chicago have joined with the Industrial Gas Section and the manufacturers in financing the combined exhibit. These companies are: Battle Creek Gas Company, Central Illinois Electric & Gas Company, Central Illinois Light Company, Central Illinois Public Service Company, Central Indiana Gas Company, Citizens Gas & Coke Utility, Consumers Power Company, Gary Heat, Light & Water Company, Illinois Northern Utilities Company, La Porte Gas & Electric Company, Madison Gas & Electric Company, Michigan Fuel & Light Company, Milwaukee Gas Light Company, Northern Indiana Power Company, Northern Indiana Public Service Company, Peoples Power Company, Public Service Co. of Northern Illinois, The Peoples Gas Light & Coke Company, Western United Gas & Electric Company, Wisconsin Fuel & Light Company, and Wisconsin Public Service Company.

The display will be in keeping with the highest standards of national industrial exposition showmanship, and will have an overall decorative theme and color scheme, worked out by Harry Swenson, director of displays and home planning, The Peoples Gas Light & Coke Company, Chicago. Again, as in past years, the gas exhibit will be the largest single unit at this biggest exposition on the metal industry calendar.

Industrial Gas Breakfast

An annual feature of the gas industry's part in the Metal Exposition is the Industrial Gas Breakfast, which will be held this year at 8:30 a.m., Tuesday morning, October 24, at the Palmer House, Chicago. Its function will be to draw together the representatives of the exhibiting gas equipment manufacturer companies, all industrial gas men in attendance at the Congress, and the A.G.A. Industrial Gas Section's representatives—with the purpose of coordinating the week's effort for maximum gas industry benefit.

Those attending the breakfast will hear an address concerning gas sales efforts in the metal field by F. X. Mettenet, vice-president, The Peoples Gas Light & Coke Company. As is customary, this feature will be held in honor of the editors of the various trade and business papers serving the metal industry.

Still another high-spot of the week's activities in Chicago, which will be of especial interest to industrial gas men, will be the Fall meeting of the Midwest Industrial Gas Sales Council of the Industrial Gas Section, to be held at the Palmer House concurrently with the National Metal Congress, October 26. William M. Riach, Jr., The Peoples Gas Light & Coke Company, chairman of the sales council, promises a worthwhile schedule of papers.

Hotel Show To Feature Gas Exhibits

THE twenty-fourth annual National Hotel Exposition will again be held in Grand Central Palace, New York, this time from November 13 to 17 inclusive—and has again been selected by the A. G. A. Industrial Gas Section's Committee on Displays at National Industrial Expositions as a worthwhile opportunity for promoting up-to-date gas equipment to that sizeable and high-revenue-producing group of customers.

The Industrial Gas Section and Consolidated Edison Company of New York, Inc., will cooperate with a group of leading manufacturers of gas equipment in staging an attractive display of latest gas-fired hotel appliances and manning it with industrial gas men and manufacturers' representatives who know the hotel fraternity and the service it expects of the gas industry. The display will be under the direction of John J. Dunne of Consolidated Edison Company, chairman of the committee in charge.

Last year over eighty linear feet of main-aisle booth space was reserved, and some 52,000 hotel, restaurant, club, institution, and hospital kitchen managers attended the event.

GOING AHEAD *with Industrial Gas*

Has anybody applied gas-heated-air (either recirculated or not) to "dry boxes" (not tentering frames) in textile finishing mills? We're looking for case histories—for here is a field where not much gas-designed equipment seems to be available although the market looks big, eager, and worthwhile. We've heard tell that fan-moved gas-heated air can do a more efficient job and permit increases in fabric speed through "dry boxes"—and can easily be installed in existing indirect-steam-heated units.

Our two new temporary salesmen for industrial gas, Trylon and Perisphere, seem to be making their quota of calls. It has already been necessary to print no less than 93,000 copies of your Industrial Publicity Committee's recent statistical analysis of industrial and commercial gas "at work" within the New York World's Fair—for promotional use by 65 companies (manufacturer companies included) all over the country.

What is purported to be the biggest drop hammer in the world—its fall equal to 29 tons—has just been put into service at Redditch, England, for stamping out aero-engine parts in aluminum alloy. A unique feature is that the hammer itself is kept hot with gas to prevent the metal being worked from being cooled unduly during the shaping process.

Stand by for the new Fenton Kelsey publication "Commercial Gas Salesman," to be born in November. It's specifically designed to help you and me in selling gas to Tubby Schwarz's "Main Street." Three cheers!—a lot of the industrial boys have been waiting for such a paper for a long, long time.

Lenox, Incorporated, most famous American makers of fine china, Trenton, N. J., are so proud of their plant that they give handsome postcards showing equipment and operations to the thousands who visit them annually. The visitor writes a "wish you were here" to several friends, and Lenox mails the cards. We take a secondary bow—for two of the most popular cards are of exemplary gas-fired glazing and decorating kilns.

A few prize clippings from the Industrial Publicity Scrapbook to demonstrate how gas utilization news can be used to reach markets not frequently plied with sales promotional material: "The Inland Printer," July; "Manufacturing Jeweler," May 18; "Paper Progress," April; "Fishing Gazette," August; "The Canner," April; "Florist's Review," February 9; and "Advertising Age," September 4.

Technical SECTION

F. M. Goodwin, *Chairman*
A. M. Beebee, *Vice-Chairman*
H. W. Hartman, *Secretary*

Water Gas Cycles

By R. Van Vliet
General Superintendent, New York and Richmond Gas Co., Stapleton, N. Y.

DURING some experimental work undertaken in connection with our stand-by water gas set some observations relating to results secured by changing cycles were also recorded. The following applies to the results obtained on our spare water gas set, which was operated when the regular set was shut down for maintenance. It is a standard 11-foot set, equipped with backrun, waste heat boiler, and hydraulic automatic control. It is operated from eleven to sixteen hours a day and is started up and shut down about four times a day.

The solid fuel used was a mixture of 73 to 80% by-product coke and 20 to 27% bituminous coal. The size of the coke was decidedly changed during this period of operation. The enriching oil sprayed into the generator was No. 5 oil, prior to July 1, 1938, and No. 6 oil, after that. This was about 70% of the total oil. The remainder, or about 30%, was No. 3 oil and that was sprayed into the carburetor. Operation was standard with no blow run or reforming and only a two-second air purge at the start of the blow. The blow averaged from 31 to 35% of the cycle using about 15,000 cubic feet of air per minute for the generator and carburetor blast combined. The run averaged about 50% up and 50% down steam.

Operating a five-minute cycle, we were troubled by the black smoke toward the end of the blow, especially the first blows after coke up and, more so, the blows following the first use of heavy oil after coke up (3d and 4th) when the top of fire is colder. The average depth of the generator fuel bed was down to 5½ feet, blow run was not desirable, the carburetor air entered the generator offtake as a tangential air connection close to the generator, and tertiary air did not help as the soot was below ignition temperature.

We decided to shorten the cycle. This would cut down on the extremes in temperature variations and lessen the percentage of CO and volatile matter in the generator blast products at the end of the blow. The end temperature of the generator fire would not be lowered much as the increment increase in the coke temperature tapers off rapidly toward the end of the blow and the bituminous coal has only a surface heat. Acting on this basis, the set was operated with a cycle length of five minutes; four minutes; three minutes, 53 seconds; two minutes, 53 seconds; and two minutes, 23 seconds. The results are given in the accompanying tabulation.

There was a black smoke at the end of many of the blows on a five-minute cycle; of a few blows on a four-minute cycle; and none on a three-minute cycle, unless an operator negligently closed down too much on his carburetor butterfly valve during the first few blows after coke up. On a 2⅓-minute cycle, there was no trace of soot visible.

Clinker

A second improvement was in the matter of side wall clinker. On a five-minute cycle, operating an average of fourteen hours a day, we had to bar down the side wall clinker every second day. If we did not do this, the make per hour and the results would taper off toward the end of the third day. One set operation permits close observation of this. On a four-minute cycle, we could go three days between bar downs; on a three-minute cycle we went four or five days; and on a 2⅓-minute cycle we went five days between bar downs and could have gone further.

We did not run long enough to reach a conclusion on how far we could go, but it did not appear that we could get rid of the side wall clinker entirely by shortening the cycle only. In quantity and quality, the clinker definitely showed the effect of smaller temperature variations. As the cycle was shortened, the clinker had less occluded coke, was less friable, and was denser. The set had a standard fire brick lining and the coke had a 6% ash content with a fusion temperature of 2650°.

Make Per Hour

Another striking difference in results was the make per hour. It is generally thought that as you reduce the length of

RESULTS DUE TO CHANGE IN LENGTH OF CYCLE

Period	Time Days	Length of Cycle Minutes	Smoke Condition End of Blow	Clinker Removal Side Wall	Make per Hour	Fuel Per M: Percentage Large Coke	Small Coke	Lbs. Bit. Coal	Per M	Oil Per M: Heavy	Light	Total	B.T.U.	Tersian Factor	Steam Per M	CO: Per Cent
April 2nd–April 20, 1935	19	5	Heavy	Every Two days	173,095	73	—	27	24.67	No. 5 2.61	.90	3.51	543	1.10	37.2	4.3
Oct. 29th–Dec. 12, 1935	45	5	Heavy	Two days	181,247	73	—	27	24.70	No. 5 2.35	1.15	3.50	547	1.07	40.1	4.6
June 11th–June 30, 1936	20	5	Heavy	Two days	174,075	74	—	26	24.28	No. 5 2.66	.83	3.49	543	1.09	38.6	4.6
Nov. 7th–Nov. 19, 1936	13	5	Heavy	Two days	175,031	81	—	19	23.87	No. 5 2.71	.86	3.59	547	1.09	35.2	4.6
Mar. 17th–April 19, 1937	33	4	Light	Three days	184,242	78	—	22	23.64	No. 5 2.80	.59	3.39	542	1.06	35.2	4.5
Nov. 11th, 1937–Apr. 18th, 1938	149	3–Minutes 53–Seconds	Medium	Three days	205,126	61	18	21	24.14	No. 5 2.42	.91	3.33	544	1.05	30.3	4.0
Used some small sized coke which gave more reactive fuel surface																
Aug. 22nd–Nov. 6, 1938	77	2–Minutes 53–Seconds	None	Four days	192,731	32	49	19	25.48	No. 6 2.45	.85	3.30	543	1.08	34.0	3.7
Increased use of small coke reduced make per hour very much, delayed ignition of producer gas resulted in cold carburetor top and poor results																
Feb. 17th–June 8, 1939	112	2–Minutes 53–Seconds	None	Four and Five Days	201,062	38	38	24	24.11	No. 6 2.10	1.18	3.28	542	1.05	34.3	4.0
Added heat storage in carburetor gave better ignition of producer gas																
June 8th–June 26, 1939	18	2–Minutes 23–Seconds	None	Five Days	199,000	37	37	25	23.54	No. 6 2.15	1.02	3.17	541	1.02	31.7	3.9

cycle, the time lost by valve changes becomes of major importance, and the consequent effect should be a reduction in the make per hour. But, as our CO_2 in the finished gas was above 4.0% and the steam per M over 35 lbs., we thought that the average temperature of the hot zone and the consequent steam decomposition during the run would be increased by shortening the cycle, and offset the time lost in valve changes.

We found our make per hour increased with each shortening of the cycle down to less than three minutes. The same air and steam rates per minute were used, but the proportionate blowing time had to be increased as the cycle was shortened, in order to maintain the checker brick temperatures. As no analyses were made of the generator blast gases, we do not know how much of this was due to less CO in the blast gases. Unfortunately, for the purpose of tabulated results, we changed the size of the fuel and it affected the make per hour so much that we include these figures reluctantly.

In the period from November 11, 1937 to April 18, 1938, we started to use some small coke mixed with the regular water gas coke. The percentage of small coke was low (10 to 25%) and it seemed to give us an increased body of fuel and the make per hour increased. In succeeding operating periods, August 1938 to date, we used a much greater percentage of this small coke and the make per hour went down as expected. The make was further cut down as we decreased the height of fire one foot in August, 1938. But there was no doubt that shortening the cycle increased the make per hour until we got down to 2⅓ minutes. This is well shown in the period from August 22 to November 6, 1938. At the start of this period, operating a four minute cycle for twelve days, the make per hour averaged 181,000 cu.ft. The cycle was then cut to two minutes, 53 seconds and the make per hour, for the next twelve days, was 195,000 cu.ft.

In the cycle used, the automatic control was adjusted so that the steam valve (exhaust steam) opened seven to eight seconds before the stack closed. The generator air purge of two seconds is shorter than usual. Both of these factors are unfavorable to the shorter cycle. However, on account of the plant limitations, we were not interested in any increased make per hour.

Results

Our fuel results, expressed in terms of "Terzian factor" improved continuously as the cycle was shortened, but again we do not wish to attach too much relative importance to the figures given in the table because of the following factors—not all unfavorable:

1. A varying amount of small coke that increased until we were using a three-minute cycle.
2. The depth of fire was decreased.
3. The oil was changed from No. 5 to No. 6.
4. Too low oil temperature for efficient heavy oil spraying (135-140° F.).
5. Change in relative amounts of heavy and light oil.

But the tendency of the figures for the solid fuel and oil per thousand was lower. The steam used per thousand decreased and the CO_2 in the finished gas dropped. The recording pyrometers showed the following temperature variations in the superheater during a cycle:

	Bottom	*Top*
5-minute cycle	120° F.	—
4-minute cycle	80° F.	85° F.
3-minute cycle	70° F.	60° F.
2⅓-minute cycle	65° F.	45° F.

The only difficulty experienced in cutting the length of the cycle was a cold carburetor top as the CO in the generator blast decreased with the shorter cycle. This affected our results in the period from August 22 to November 6, 1938, when we first tried a three-minute cycle. On shut down, more heat storage capacity was added in the carburetor and we encountered no more trouble from this source.

We had to shut down the set for repairs and the period of eighteen days operation from June 8 to June 26 was too short to do all that we wished but it indicates that there are possibilities in a cycle of less than three minutes.

New Standards Distributed

THE Subcommittee on Approval Requirements for Hotel and Restaurant Ranges, Unit Broilers, and Deep Fat Fryers at its last meeting held on July 10, 1939, at the Association's Cleveland Testing Laboratories drafted final revisions to the American Standard Approval Requirements for Hotel and Restaurant Ranges, Z21.3-1938 and to the Tentative American Standard Approval Requirements for Deep Fat Fryers. These two sets of standards will be distributed to the gas industry about the first week of October.

Requirements for hotel and restaurant ranges have been extended to include requirements for unit broilers. For this reason, the title of this set of standards has been revised and will read American Standard Approval Requirements for Hotel and Restaurant Ranges and Unit Broilers. Important revisions proposed include the recommendations of the Subcommittee on Test Gases and Test Pressures and bring this set of requirements in line with those for other gas appliances. They extend approval of hotel and restaurant ranges and unit broilers for use with mixed gases which are being more widely distributed in a number of sections of this country. These changes are subject to the ratification by the A.S.A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee.

Tentative standards for deep fat fryers were approved by the subcommittee to be distributed to the industry for criticism after extending these requirements to conform to those for other gas appliances. At the same time, the scope of these requirements was limited to apply to deep fat fryers with a maximum cooking fluid load of 300 pounds. In this respect, it was believed that larger sized units are individually engineered for a specific application and are, as a result, installed to provide safe and satisfactory performance.

Criticism and comments of the above sets of requirements will be considered by the subcommittee at its next meeting. All comments should be addressed to R. B. Harper, Chairman, A.S.A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee, care of the American Gas Association Testing Laboratories, 1032 East 62nd Street, Cleveland, Ohio.

Revise Procedure Manual

AT the last meeting of the Approval Requirements Committee held April 21-22 at the Association's Testing Laboratories in Cleveland, a revised edition of the Manual of Organization and Procedure for American Gas Association Requirements Committees was approved. This will constitute the third edition of this pamphlet which has been prepared as a guide to those committees of the American Gas Association which are engaged in the preparation or revision of approval, installation or listing requirements for gas appliances or accessories.

The revised edition is necessary due to the continued growth of the requirements committee activities coupled with fundamental changes in the appointment of personnel as well as many other modifications in committee organization and procedure. These revisions bring this manual up to date.

Although this text is primarily distributed to the members of the various committees of the American Gas Association, many requests have been received for its use in consumer's educational courses from many colleges and universities located in the United States and other countries. The manual is appropriate for this purpose as it clearly defines and illustrates the procedure by which requirements are developed to serve the best interests of the gas consumer. Requests for this booklet should be addressed to the American Gas Association Testing Laboratories, 1032 East 62nd Street, Cleveland, Ohio.

Practically every industrial process requiring fuel at the exhibits of private corporations at the World's Fair uses gas fuel. This is additional evidence of the national swing to gas.

Requirements Committee Meets in October

ARRANGEMENTS have been made by R. B. Harper, Chairman, A.S.A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee, for his committee to convene at the A. G. A. Testing Laboratories in Cleveland, the first part of October. At this time, the committee will consider for its ratification nine sets of approval and listing requirements on various gas appliances and accessories.

These include requirements for automatic devices to prevent escape of unburned gas, central heating gas appliances, gas clothes dryers, conversion burners, hot plates and laundry stoves, domestic gas ranges, gas space heaters, water heater, gas range and space heater thermostats, and gas unit heaters. After these requirements have been approved by this committee, they will be submitted to the Executive Board of the Association and subsequently to the American Standards Association for their acceptance as American Standard.

SELLING INDUSTRIAL GAS

(Continued from page 364)

Most gas companies are in need of additional summer loads. Such summer loads can be served at low cost and if a reasonable rate can be obtained, profit will be made. Air conditioning load has ideal characteristics for filling the summer valley in the gas load curve and furthermore the development of gas-operated air conditioning equipment is rapidly reaching a fine competitive position. Let me therefore urge that you not only keep your eye on progress and prepare yourself for what is coming, but that you actually participate in the necessary field pioneering work. The greater your participation is, the sooner this very attractive opportunity will be converted into profit-yielding business.

The first requirement for success in the sale of industrial gas at a profit is that of getting full recognition of all the values inherent in our product. These values may be humane, financial, sociological, technological, or may have other names, but whatever they are or whatever they may be called, they must not remain hidden.

The degree of expertness and the quality of salesmanship required of the sales staff, I'll leave to your own contemplation. But I do want to dwell on the direction of the sales staff to the end that it becomes conscious of its responsibility to contribute to the financial well-being of the company for whom it works.

If it is the object of our business to make profit (and I hope it is) then let us think about when, where and how we can make profit on industrial gas. We are accustomed to report the results of our work in terms of E.A.R.—large figures. But we do not want E.A.R., we want profit, and since this is so, should we not in the name of common sense and decency change our yardstick so that it will measure our work in terms of the thing we want—NET? A good soldier will don his armament and go out and spill his blood for what he is told to fight for. Our loyal sales engineers are going after E.A.R. day and night when we tell them that that is what we want them to do.

If E.A.R. and profit were synonymous we would still be on a sound basis, but I need not tell you that they are not. It may be difficult or even impossible accurately to determine the net value of any load, but any reasonable approximation is better than gross revenue. Give the salesmen credit for the NET they produce and I venture to predict that many of them will find greater glory in fields other than the ones they are now cultivating diligently, particularly if they are conscious of the possibility of greater earnings for themselves if they are successful in establishing a good record in terms of net load values.

Conclusion

If this brief paper has served to turn your thoughts in the direction of progress, it has served its purpose. We are making progress and I am not raising the point as to whether that progress is commensurate with the progress made in other fields. It is too obvious in our case that standing still is suicidal and that if we fail to keep abreast of the general progress we are not doing justice to our cause. The gas business is built on the bed rock of sound fundamentals but it is up to us constantly to improve and rebuild the superstructure so as to keep up with changing requirements of the times and provide that essential life-giving and life-preserving element—profit.

Personnel Service

SERVICES OFFERED

Water Heater **Manufacturers Representative** with broad experience, excellent sales record, references, and utility following. At present employed, offers his services to water heater manufacturer or utility as sales manager or supervisor of department. **1299.**

Manufacturers Sales Manager known in gas industry desires change; wishes to connect with manufacturer who has good product. Outstanding contacts eastern utilities, distributors; excellent reputation and record and result getter. **1303.**

Engineer, young executive—with combination of practical experience in the natural and manufactured gas industry for position of responsibility. Thirteen years of creditable work in production, distribution, transmission operation and construction, load building, and more recently in budget preparation and property control as assistant. **1304.**

Background of merchandising, planning, **sales** training, organizing, promotion and **management.** Experienced in manufacturing, utility and dealer fields. Quotations from letters received during last connection: "Very excellent sales program." "Used in my course in sales management." "This is wonderful plan, conceived along soundest merchandising lines." "Thorough understanding of markets and problems." **1305.**

Experienced gas utility **manager-accountant** available for any position with future. Salary no object. Can assume full responsibility of property up to 2500 meters (36). **1306.**

Knowledge of manufacture of coal, water, and reformed natural gas. University courses in public utility accounting, operating statistics, economics, rate structures, etc. Ten years' experience **engineering** (31). **1307.**

Manufacturer's representative or utility supervisor. Eight years' experience all types of gas appliances; thoroughly experienced in dealer merchandizing. Have sold for water heater and gas range manufacturers; also have utility company sales experience. Willing to locate anywhere. Married (34). **1308.**

Certified Public Accountant (N. Y.) twenty years' broad public experience in supervising capacity—majority on public utilities. Examinations under S. E. C.; F. P. C.; and Holding Act requirements; also for Income Taxes. Qualified to render constructive executive service where analytical study, planning of details, and supervision of others are involved. **1309.**

SERVICES OFFERED

A young man schooled in the analysis of business problems (Harvard Graduate School of Business Administration, M.B.A., 1939) offers an eager and flexible mind to be trained for a position in either **advertising,** publicity, public relations, selling, or **sales promotion.** This man possesses diligence, ambition, and a creative imagination. **1310.**

Chemist—gas analyst. Plant and laboratory experience on the liquefaction, purification and analyses of rare gases; analyses of hydrocarbon gas by low and high temperature Pobielniak; analyses of nitrous oxides with the nitrometer (40). **1311.**

Draftsman—topographical, electrical, also hydraulic pipe experience. Understand three phase four wire net work system and furnace and combustion work. Thoroughly familiar with public utility systems. **1312.**

As sales supervisor, **salesman,** heating engineer or **factory representative.** Am a graduate engineer, have had twenty years of experience with gas utilities in gas sales work. Have had supervision and training of salesmen also. Can furnish the best of references and produce results. **1313.**

A **load builder,** with many outstanding accomplishments in the gas industry, seeks a connection. Experienced in industrial fuel applications, hotel and restaurant appliances and servicing; also house heating and air conditioning. Manufactured, mixed and natural gas experience. Services are available immediately. Any locality. **1314.**

Fifteen years' experience in gas distribution. Service man and construction foreman with welding, pipe fitting and **sales** experience with **service activities.** Four years college special training in gas measurement, distribution and sales. Experience with both natural and manufactured gas. Available immediately. Want permanent position. **1315.**

Markets are measurable. So are public attitudes. Knowing the facts takes the guesswork out of selling.—Here is a man who can be valuable as a **consultant on market analysis** and consumer research problems. He is equipped by training and intimate knowledge of the gas utility and appliance fields. **1316.**

1939 Advisory Council

F. M. BANKS.....Los Angeles, Calif.
C. E. BENNETT.....Pittsburgh, Pa.
C. W. BENNETT.....Detroit, Mich.
HOWARD BRUCE.....Baltimore, Md.
HALE A. CLARK.....Detroit, Mich.
H. E. CLIFF.....Newark, N. J.
H. C. COOPER.....Pittsburgh, Pa.
A. S. CORSON.....Philadelphia, Pa.
HUGH CUTHRELL.....Brooklyn, N. Y.
ADDISON B. DAY.....Los Angeles, Calif.
O. H. FOGG.....New York, N. Y.
F. C. FREEMAN.....Providence, R. I.
JOHN A. FRY.....Detroit, Mich.
C. W. GALE.....Knoxville, Tenn.
R. W. GALLAGHER.....New York, N. Y.
F. L. GRIFFITH.....Chicago, Ill.
C. A. HARRISON.....Toledo, Ohio
ROBERT W. HENDEE...Colorado Springs, Colo.
C. W. HUNTER.....Philadelphia, Pa.
F. A. LYDECKER.....Newark, N. J.
R. L. MANIER.....Syracuse, N. Y.
D. H. MITCHELL.....Hammond, Ind.
M. I. MIX.....Chicago, Ill.
WM. MOELLER, JR.....Los Angeles, Calif.
B. J. MULLANEY.....Chicago, Ill.
JAMES F. POLLARD.....Seattle, Wash.
J. V. POSTLES.....Philadelphia, Pa.
J. F. QUINN.....Brooklyn, N. Y.
THOS. E. ROACH.....Tacoma, Wash.
W. FRANK ROBERTS.....Baltimore, Md.
J. F. ROONEY.....New York, N. Y.
F. M. ROSENKRANS.....Kansas City, Mo.
W. E. STEINWEDELL.....Cleveland, Ohio
JOHN K. SWANSON.....Saskatoon, Canada
J. B. TONKIN.....Pittsburgh, Pa.
GEORGE E. WELKER.....Oil City, Pa.
P. S. YOUNG.....Newark, N. J.

AFFILIATED ASSOCIATIONS

Association of Gas Appliance and Equipment Manufacturers
Pres.—E. R. Guyer, Cribben & Sexton Co., Chicago, Ill.
Exec. Sec.—C. W. Berghorn, 60 East 42nd St., New York, N. Y.

Canadian Gas Association
Pres.—Julian Garrett, Northwestern Utilities Ltd., Edmonton, Alberta.
Sec.-Tr.—G. W. Allen, 7 Astley Ave., Toronto.

Empire State Gas and Electric Association
Pres.—E. P. Prezzano, Westchester Lighting Co., Mt. Vernon, N. Y.
Chairman, Gas Section—John J. Garland, The Brooklyn Union Gas Co., Brooklyn, N. Y.
Sec.—George H. Smith, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Pres.—E. F. Kelly, Central Illinois Public Service Co., Springfield, Ill.
Sec.—Jack Abbey, Room 608, Illinois Building, Springfield, Ill.

Indiana Gas Association
Pres.—Paul A. McLeod, Public Service Co. of Indiana, New Castle, Ind.
Sec.-Tr.—H. Wayne Thornburg, Central Indiana Gas Co., Anderson, Ind.

Michigan Gas Association
Pres.—Dean W. Flowers, Michigan Consolidated Gas Co., Muskegon, Mich.
Sec.-Tr.—A. G. Schroeder, Michigan Consolidated Gas Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—J. A. Stoll, Baltimore Transit Co., Baltimore, Md.
Sec.—W. D. Haley, 16 Carroll Ave., Takoma Park, Md.

Mid-West Gas Association
Pres.—Fred J. Gunther, Iowa-Nebraska Light & Power Co., Lincoln, Neb.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—Chester C. Smith, Kansas City Power and Light Co., Kansas City, Mo.
Sec.-Tr.—N. R. Beagle, Missouri Power & Light Co., Jefferson City, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass.
Exec. Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.

New Jersey Gas Association
Pres.—George B. Webber, Public Service Electric & Gas Co., Newark, N. J.
Sec.-Tr.—H. A. Sutton, Public Service Electric and Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—T. C. Jones, The Delaware Gas Co., Delaware, Ohio.
Sec.-Tr.—Frank B. Maullar, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—Glenn C. Kiley, Oklahoma Gas & Electric Co., Oklahoma City, Okla.
Sec.—Kate A. Niblack, 625 Biltmore Hotel, Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—A. E. Holloway, San Diego Consolidated Gas & Electric Co., San Diego, Calif.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—L. B. Eichengreen, Philadelphia Electric Co., Philadelphia, Pa.
Sec.—William Naile, Lebanon Valley Gas Co., Lebanon, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—W. H. Haupt, Acme Drilling Co., Coudersport, Pa.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—C. H. Zachry, Southern Union Gas Co., Dallas, Texas
Sec.-Tr.—S. L. Drumm, New Orleans Public Service Inc., New Orleans, La.

Wisconsin Utilities Association
Pres.—Bruno Rahn, Milwaukee Gas Light Co., Milwaukee, Wis.
Exec. Sec.—A. F. Herwig, 135 West Wells St., Milwaukee, Wis.

AMERICAN GAS ASSOCIATION

HEADQUARTERS, 420 LEXINGTON AVE., NEW YORK, N. Y.

OFFICERS AND DIRECTORS

President	CONRAD N. LAUER	Philadelphia, Pa.
Vice-President	WALTER C. BECKJORD	New York, N. Y.
Vice-President	T. J. STRICKLER	Kansas City, Mo.
Treasurer	ERNEST R. ACKER	Poughkeepsie, N. Y.
Managing Director	ALEXANDER FORWARD	New York, N. Y.
Assistant Manager	H. W. HARTMAN	New York, N. Y.
Secretary	KURWIN R. BOYES	New York, N. Y.
Director, Publicity-Advg.	C. W. PERSON	New York, N. Y.
Director, Home Appliance Planning Bureau	J. W. WEST, Jr.	New York, N. Y.
Sectional Vice-Pres.	H. A. EHRMANN	New York, N. Y.
Sectional Vice-Pres.	F. X. METTENET	Chicago, Ill.
Sectional Vice-Pres.	FRANK H. TREMBLY, Jr.	Philadelphia, Pa.
Sectional Vice-Pres.	MERRILL N. DAVIS	Bradford, Pa.
Sectional Vice-Pres.	T. R. WEYMOUTH	New York, N. Y.
Sectional Vice-Pres.	F. M. GOODWIN	Boston, Mass.

FRANK H. ADAMS	Toledo, Ohio	N. C. McGOWEN	Shreveport, La.
JOHN W. BATTEN	Detroit, Mich.	GEORGE F. MITCHELL	Chicago, Ill.
ARTHUR F. BRIDGE	Los Angeles, Calif.	F. A. NEWTON	New York, N. Y.
C. M. COHN	Baltimore, Md.	CLIFFORD E. PAIGE	Brooklyn, N. Y.
L. B. DENNING	Dallas, Texas	FRANK H. PAYNE	Erie, Pa.
W. E. DERWENT	Rockford, Ill.	W. T. RASCH	New York, N. Y.
H. L. DOHERTY	New York, N. Y.	HERMAN RUSSELL	Rochester, N. Y.
L. B. EICHENGREEN	Philadelphia, Pa.	N. T. SELLMAN	New York, N. Y.
H. L. FARRAR	San Francisco, Calif.	OTTO SNYDER	Albany, N. Y.
C. E. GALLAGHER	Cleveland, Ohio	MARCY L. SPERRY	Washington, D. C.
GEORGE S. HAWLEY	Bridgeport, Conn.	CHARLES A. TATTERSALL	New York, N. Y.
D. W. HARRIS	Shreveport, La.	P. S. YOUNG	Newark, N. J.

SECTION OFFICERS

ACCOUNTING—Chairman	H. A. EHRMANN	New York, N. Y.
Vice-Chairman	F. B. FLAHIVE	New York, N. Y.
Secretary	H. W. HARTMAN	New York, N. Y.
COMMERCIAL—Chairman	F. X. METTENET	Chicago, Ill.
Vice-Chairman	DAVIS M. DeBARD	New York, N. Y.
Secretary	J. W. WEST, Jr.	New York, N. Y.
INDUSTRIAL GAS—Chairman	FRANK H. TREMBLY, Jr.	Philadelphia, Pa.
Vice-Chairman	FRANKLIN T. RAINEY	Columbus, Ohio
Secretary	EUGENE D. MILENER	New York, N. Y.
MANUFACTURERS—Chairman	MERRILL N. DAVIS	Bradford, Pa.
NATURAL GAS—Chairman	T. R. WEYMOUTH	New York, N. Y.
Vice-Chairman	ELMER F. SCHMIDT	Dallas, Texas
Secretary	E. H. POE	New York, N. Y.
TECHNICAL—Chairman	F. M. GOODWIN	Boston, Mass.
Vice-Chairman	A. M. BEEBEE	Rochester, N. Y.
Secretary	H. W. HARTMAN	New York, N. Y.

A. G. A. TESTING LABORATORIES—1032 East 62nd Street, Cleveland, Ohio
718 Towne Avenue, Los Angeles, Calif.

Chairman, Managing Committee	N. T. SELLMAN	New York, N. Y.
Director	R. M. CONNER	Cleveland, Ohio
Supervisor, Pacific Coast Branch	F. O. SUFFRON	Los Angeles, Calif.

WASHINGTON OFFICE:
George W. Bean, Fuel Consultant, Albee Bldg., Washington, D. C.

PRINTED IN U. S. A